

Figure 1 A

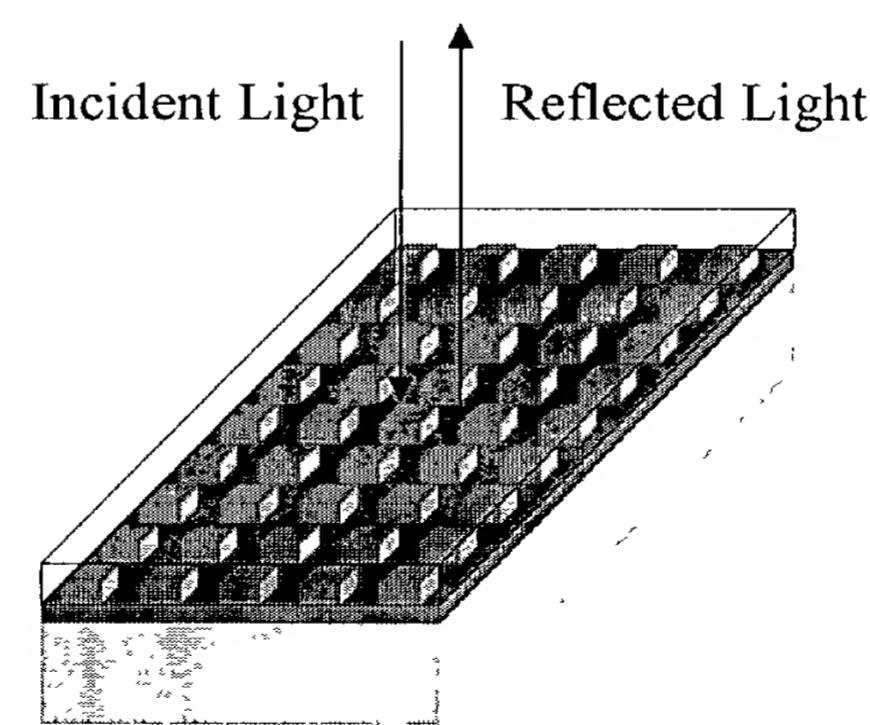


Figure 1 B

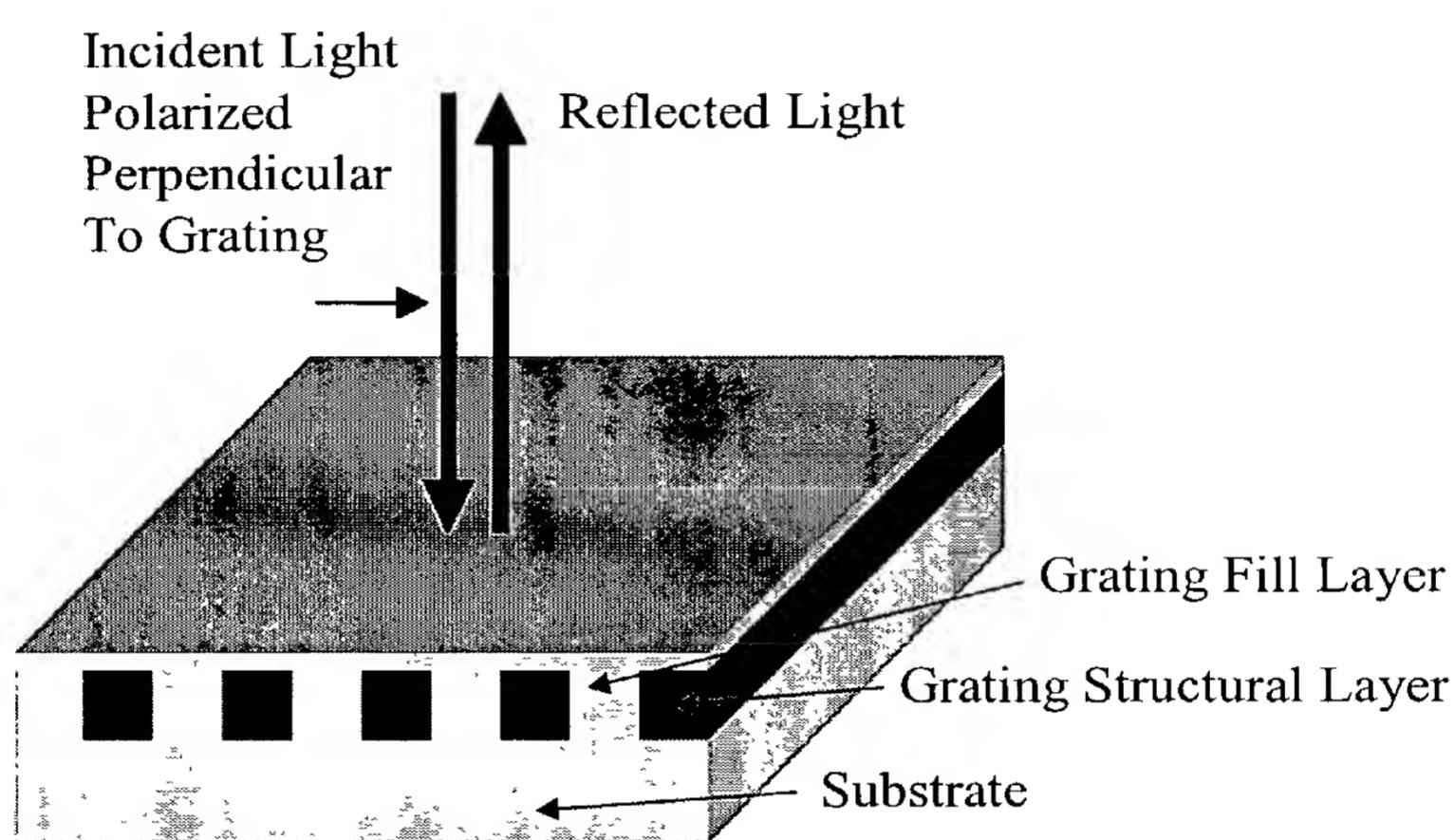


Figure 2

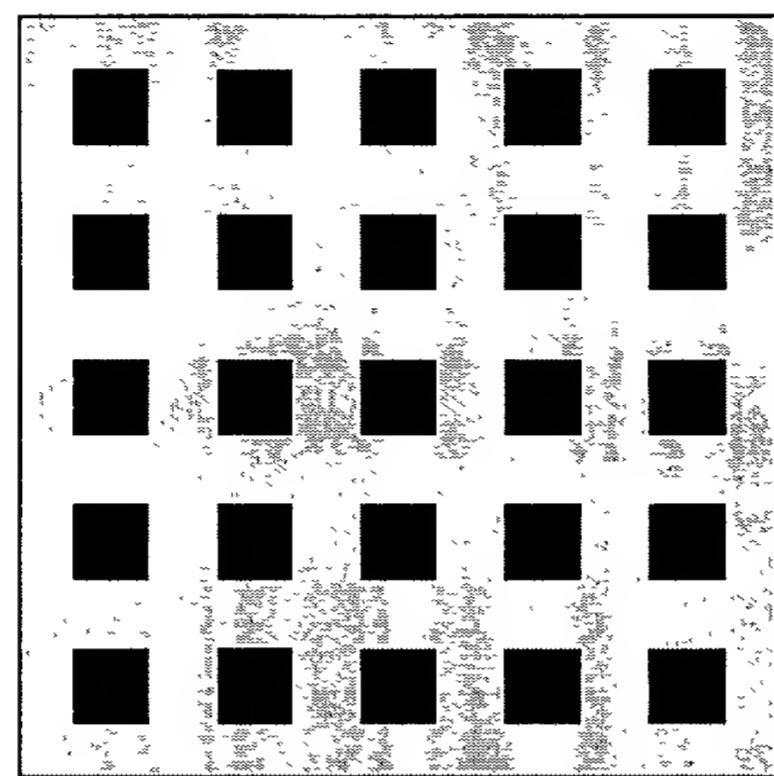


Figure 3A

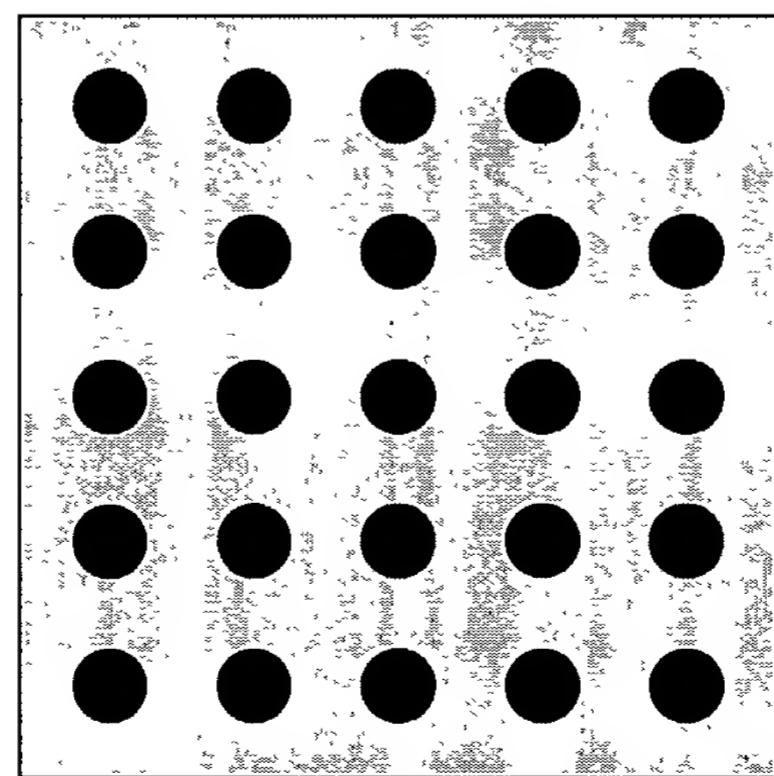


Figure 3B

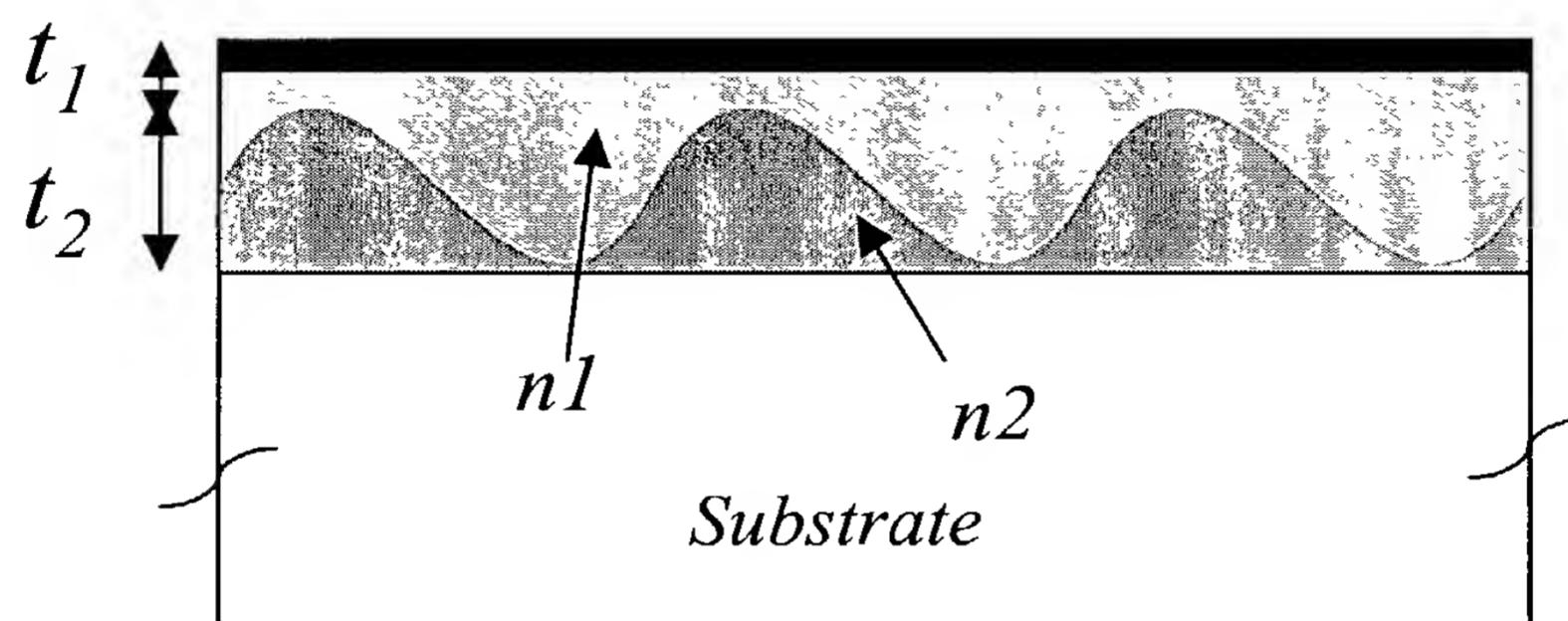


Figure 4

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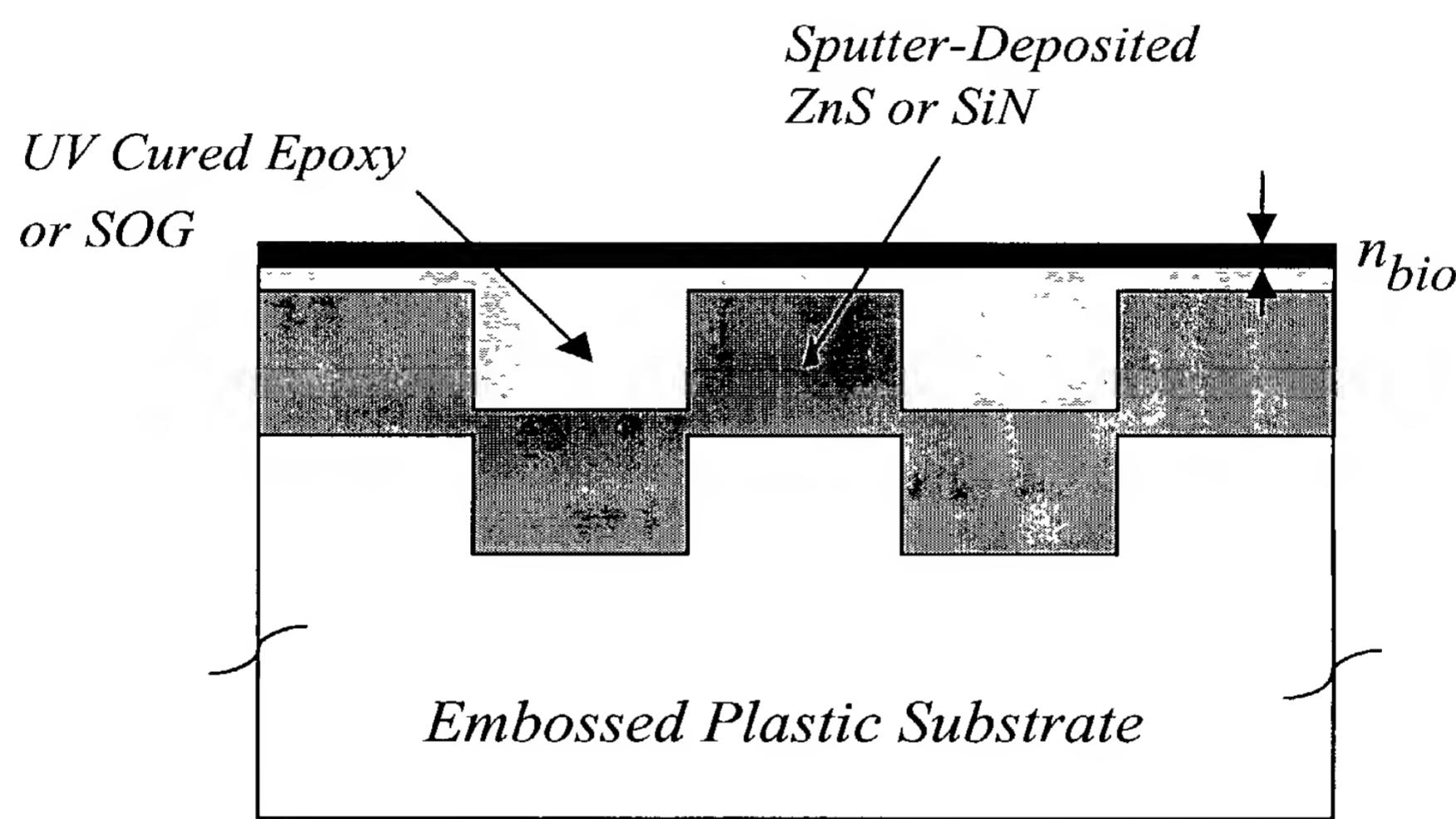


Figure 5

Amine

- Sulfo-succinimidyl-6-(biotinamido)hexanoate (Sulfo-NHS-LC-Biotin)
 - Streptavidin / avidin then biotinylated molecule
- N,N'-disuccinimidyl carbonate (DSC); • -NH₂, non-cleavable
- Dimethyl pimelimidate (DMP); • -NH₂, non-cleavable
- Dimethyl 3,3'-dithiobispropionimidate (DTBP); • -NH₂, cleavable
- 1-Ethyl-3-(3-Dimethylaminopropyl)carbodiimide Hydrochloride (EDC) and N-Hydroxysulfosuccinimide (Sulfo-NHS); • -COOH
- Sulfo-succinimidyl 6-[a-methyl-a-(2-pyridyl-dithio)toluamido] hexanoate (Sulfo-LC-SMPT); • -SH, cleavable
- N-(B-Maleimidopropoxy)succinimide ester (BMPS)
 - -SH₂, non-cleavable
- Sulfo-succinimidyl 4-[N-maleimidomethyl)cyclohexane-1-carboxylate (Sulfo-SMCC); • -SH, non-cleavable

Aldehyde

- Directly with aldehyde or first amino then aldehyde
 - -NH₂

Ni(II)

- Using Nitrilotriacetic acid (NTA) group, which forms a chelate with Ni(II)
 - His-tagged molecules

Figure 6

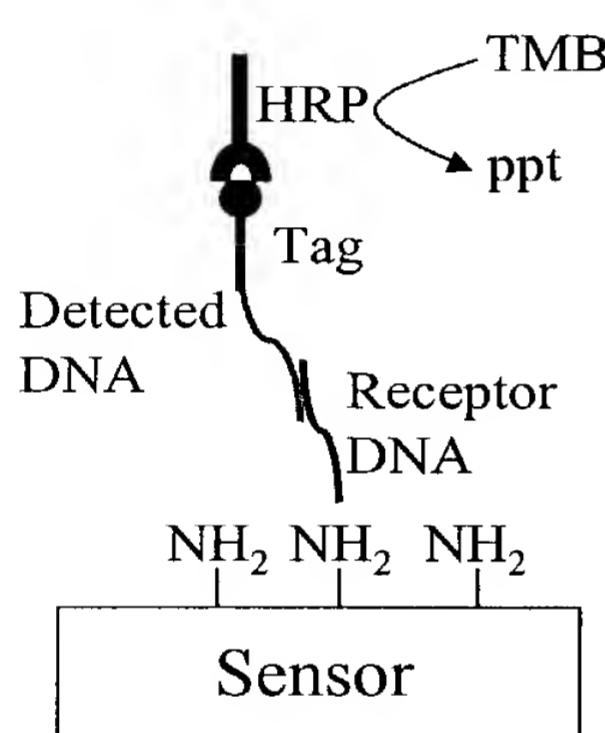


Figure 7A

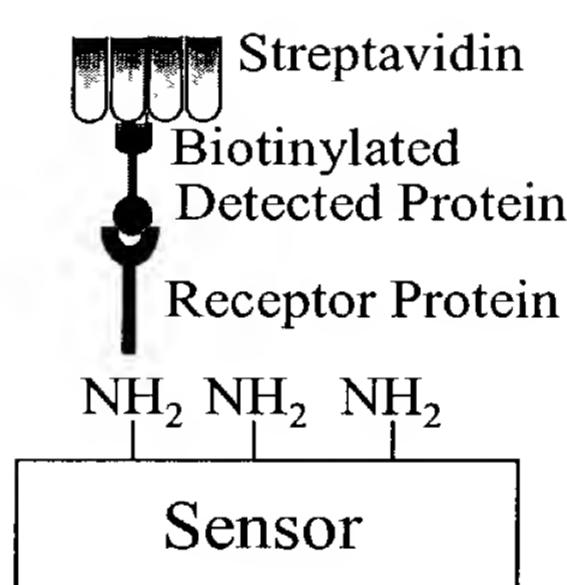


Figure 7B

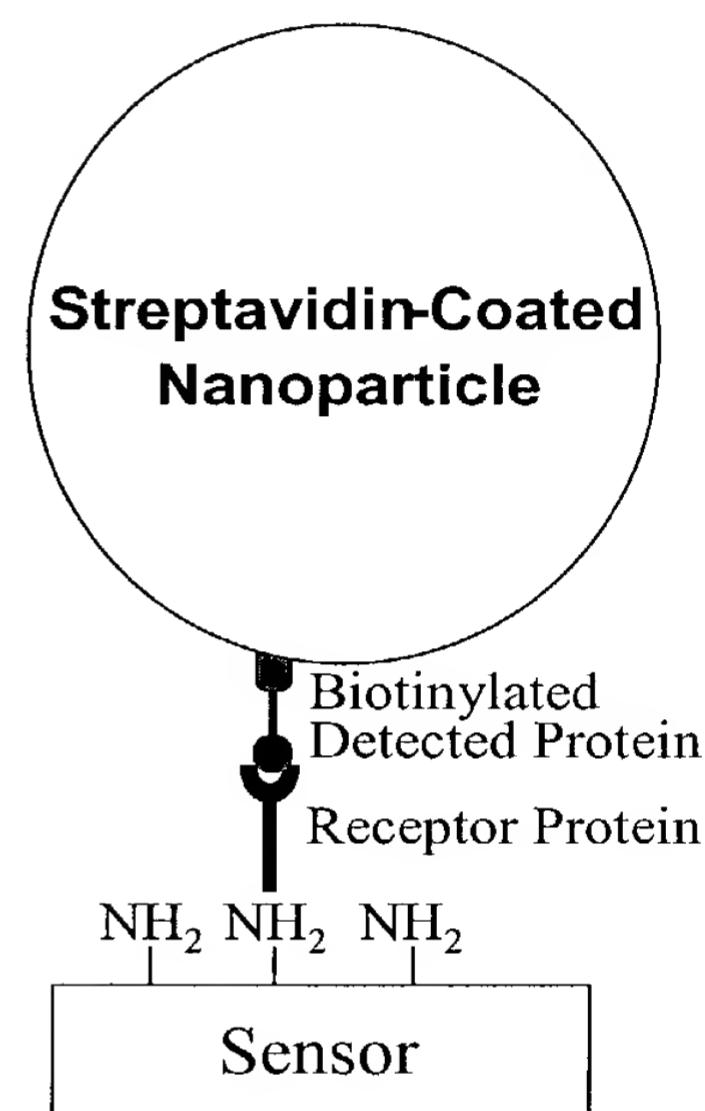


Figure 7C

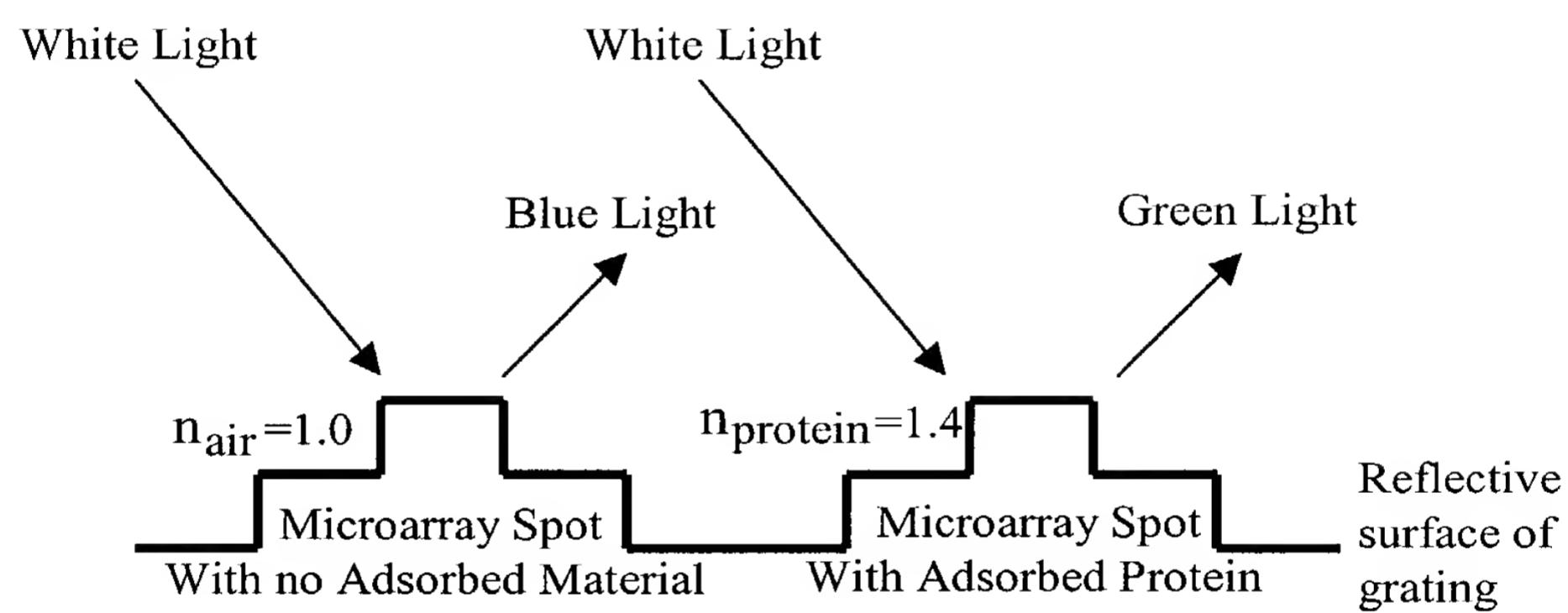


Figure 8

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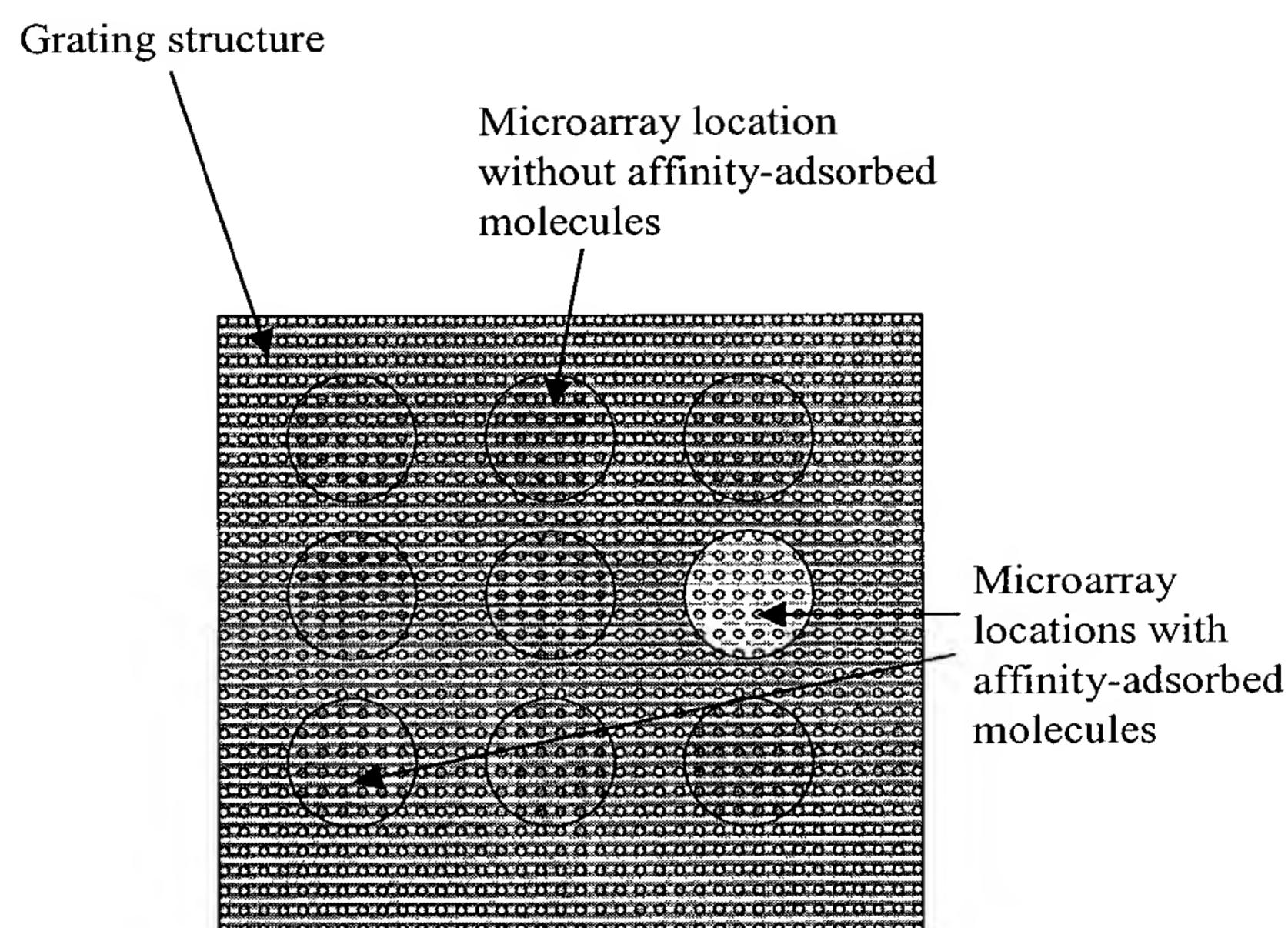
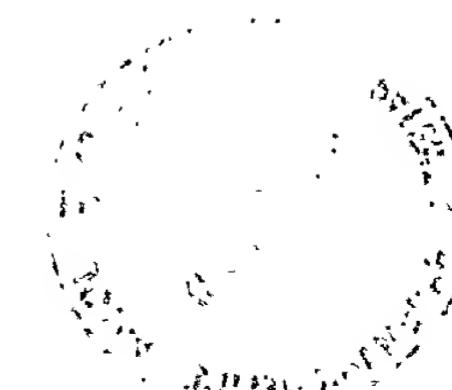


Figure 9



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□ Microtiter plate

Plastic bottomless microtiter plate.
Holes in plate are open from top to bottom

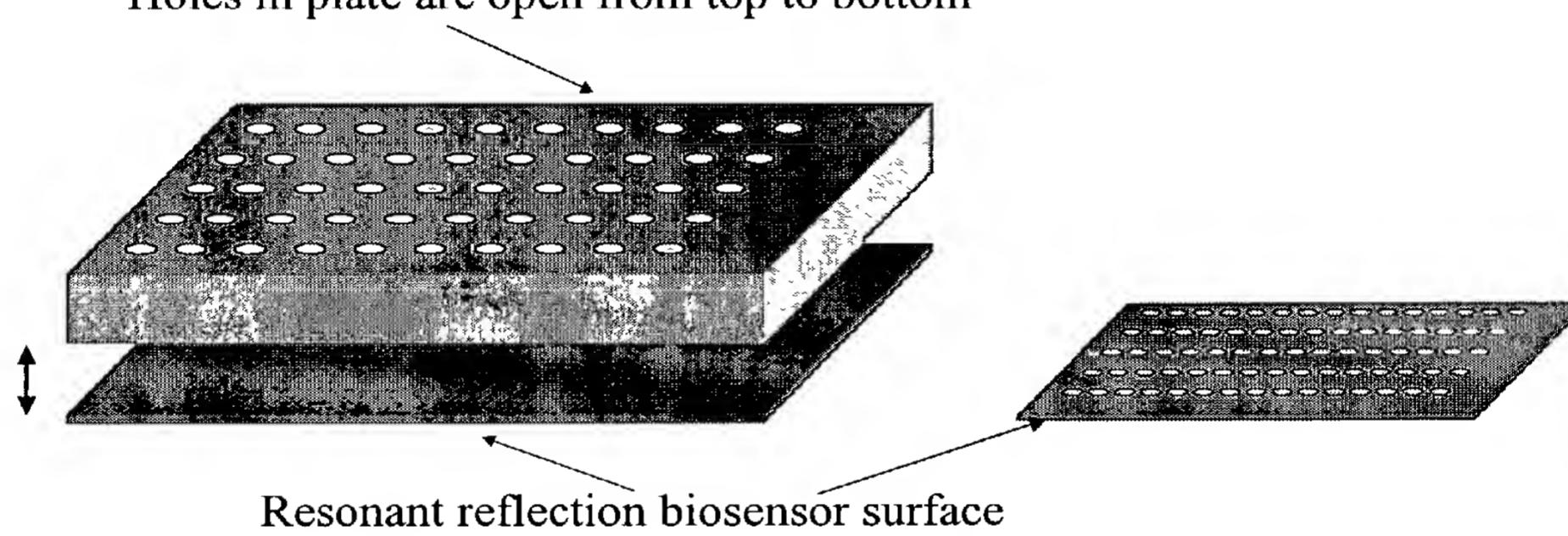


Figure 10A

□ Microarray slide

Figure 10B



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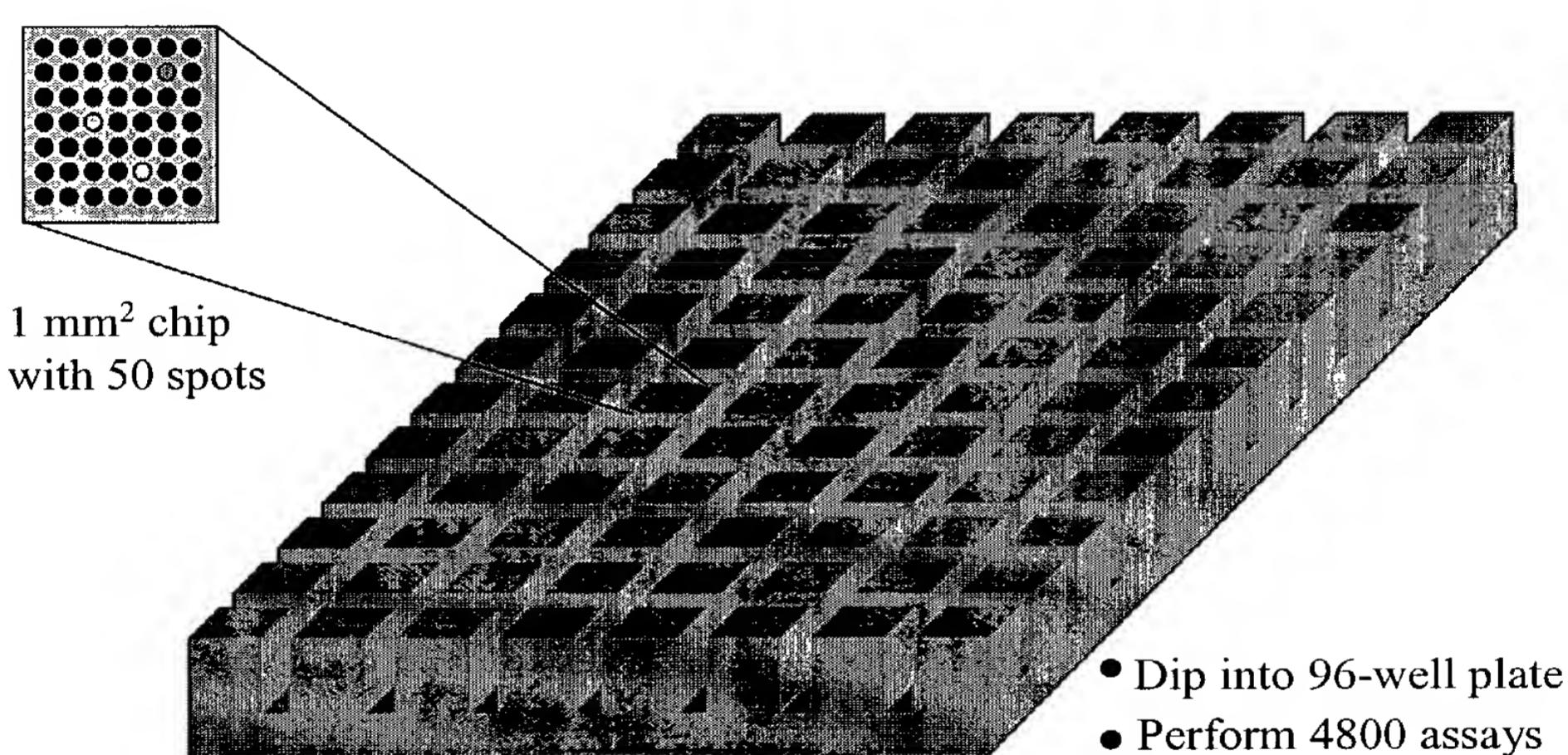


Figure 11



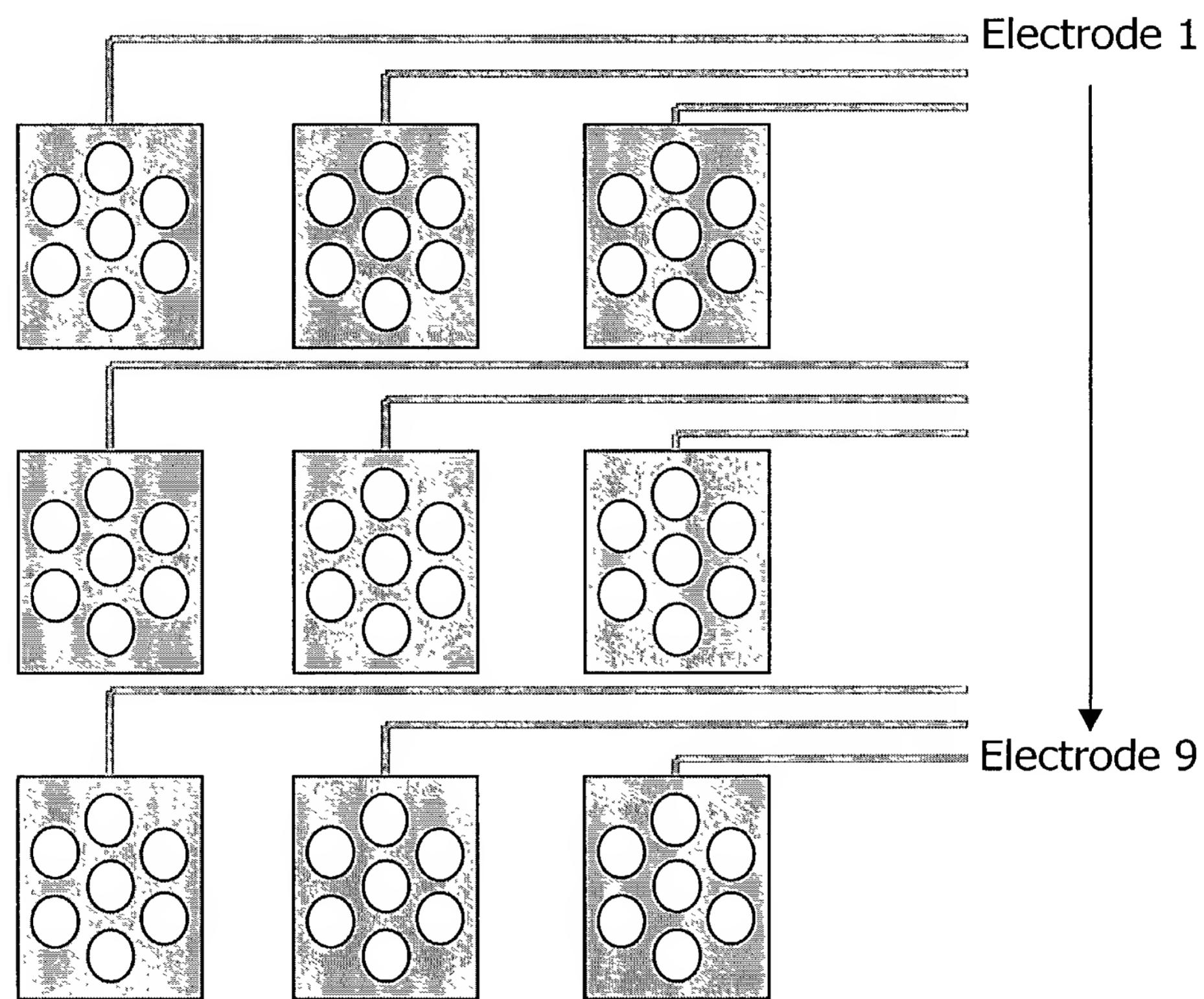


Figure 12

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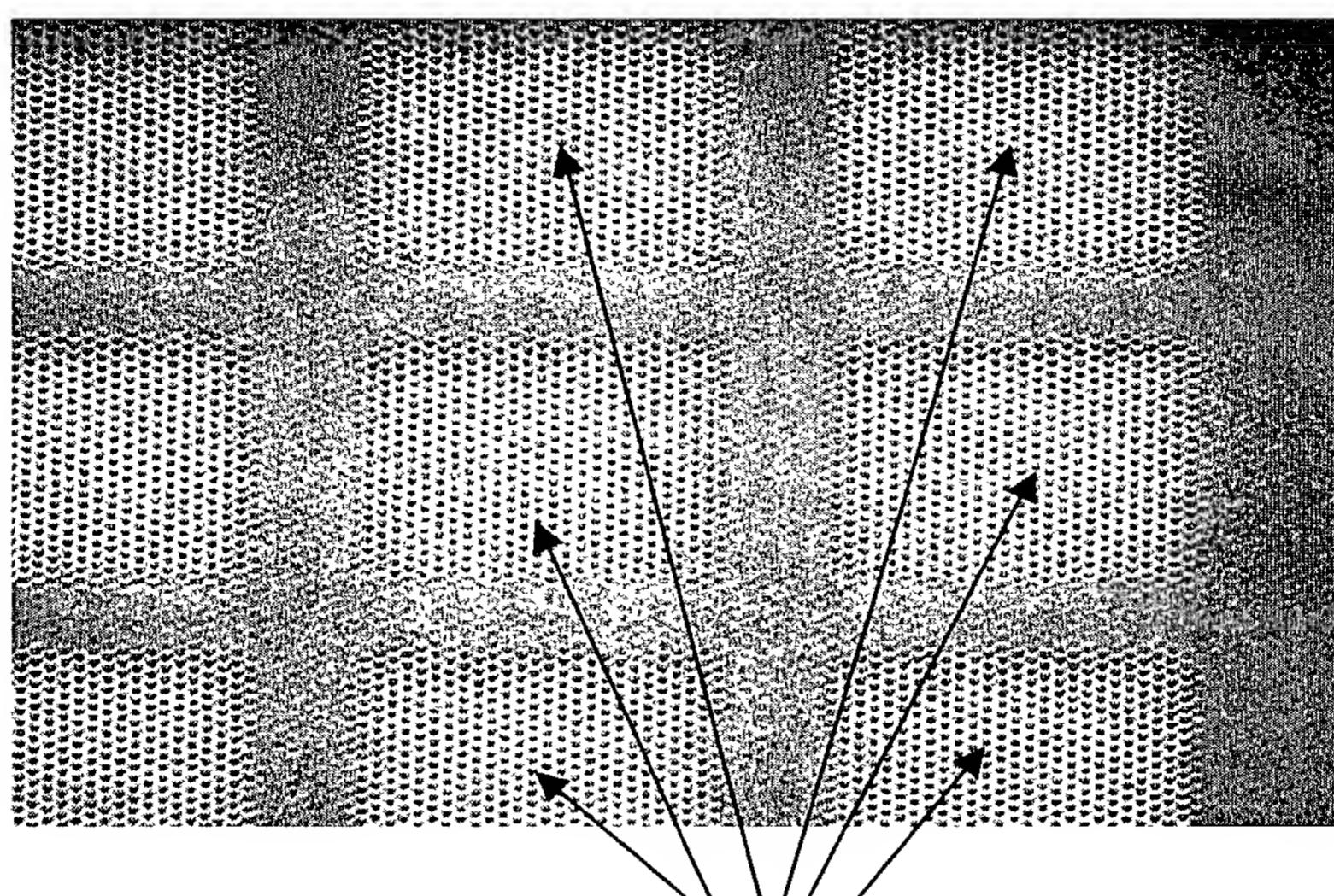


Figure 13

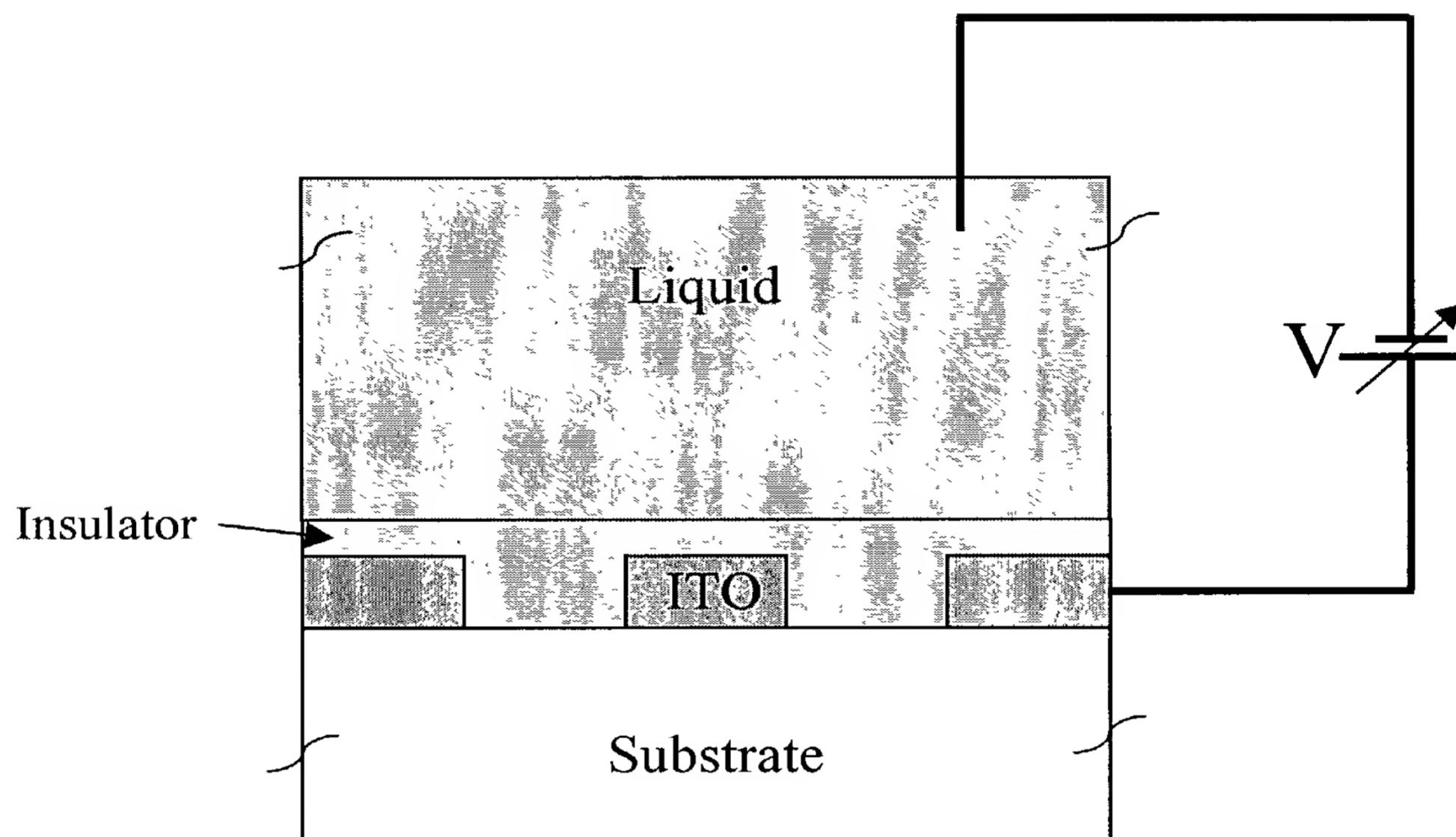


Figure 14

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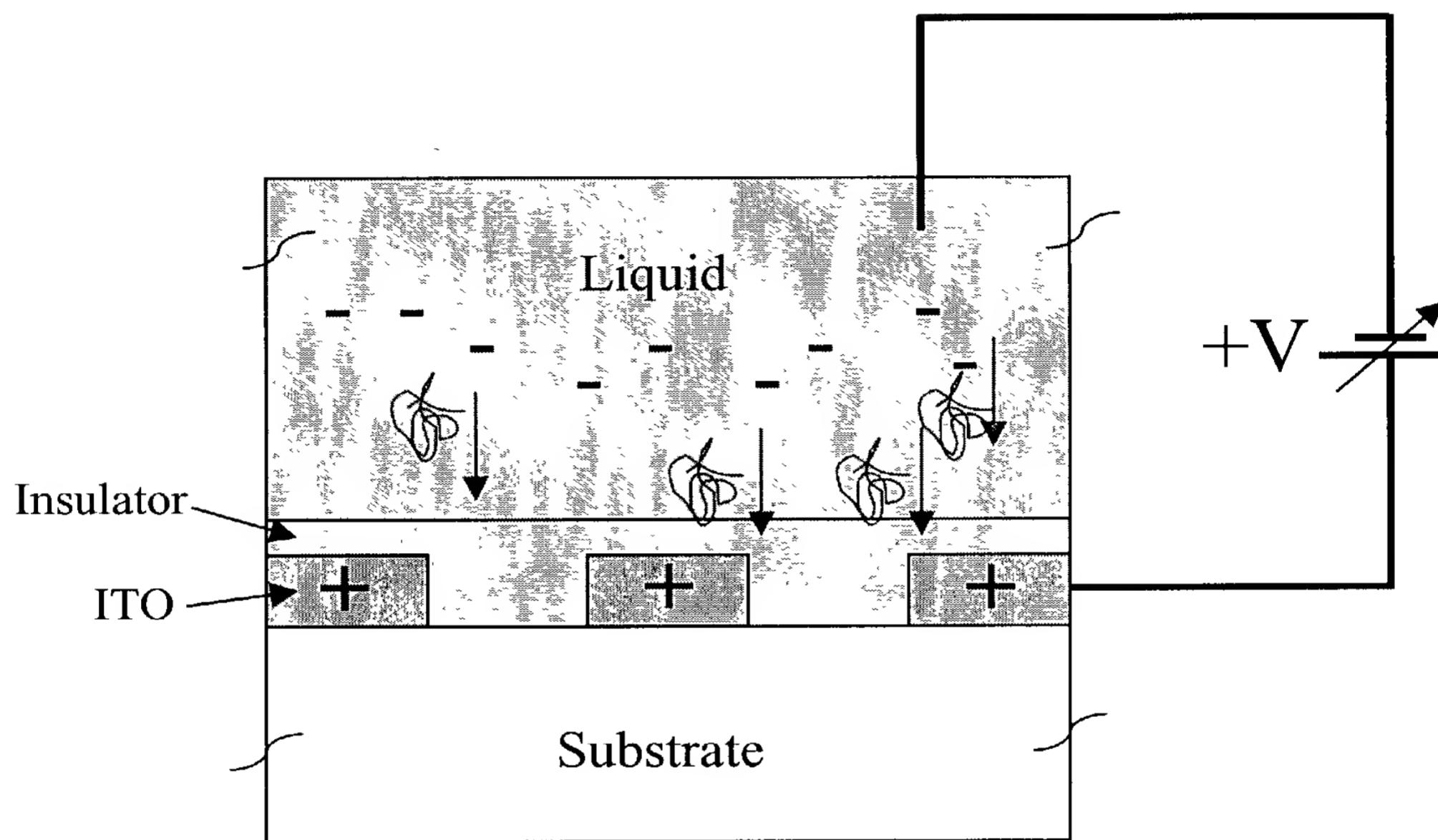


Figure 15

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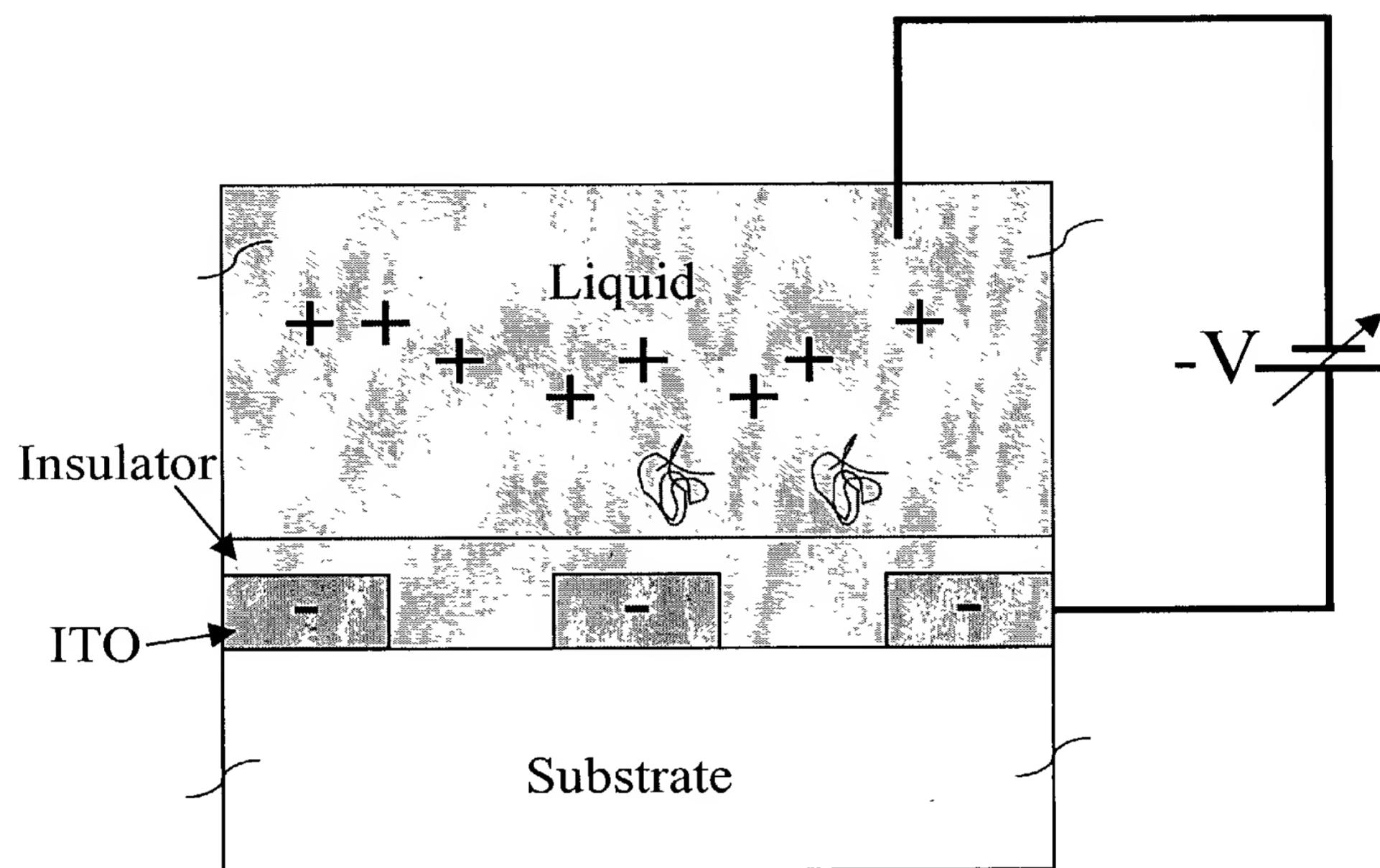


Figure 16

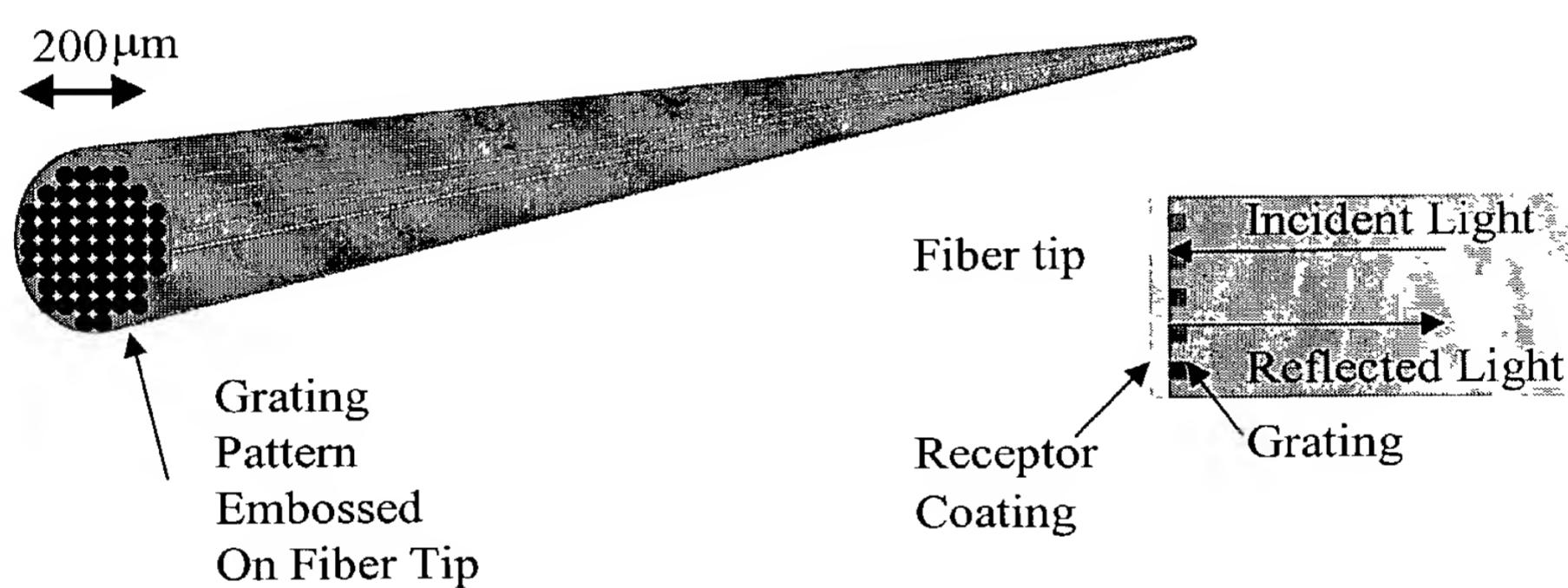


Figure 17

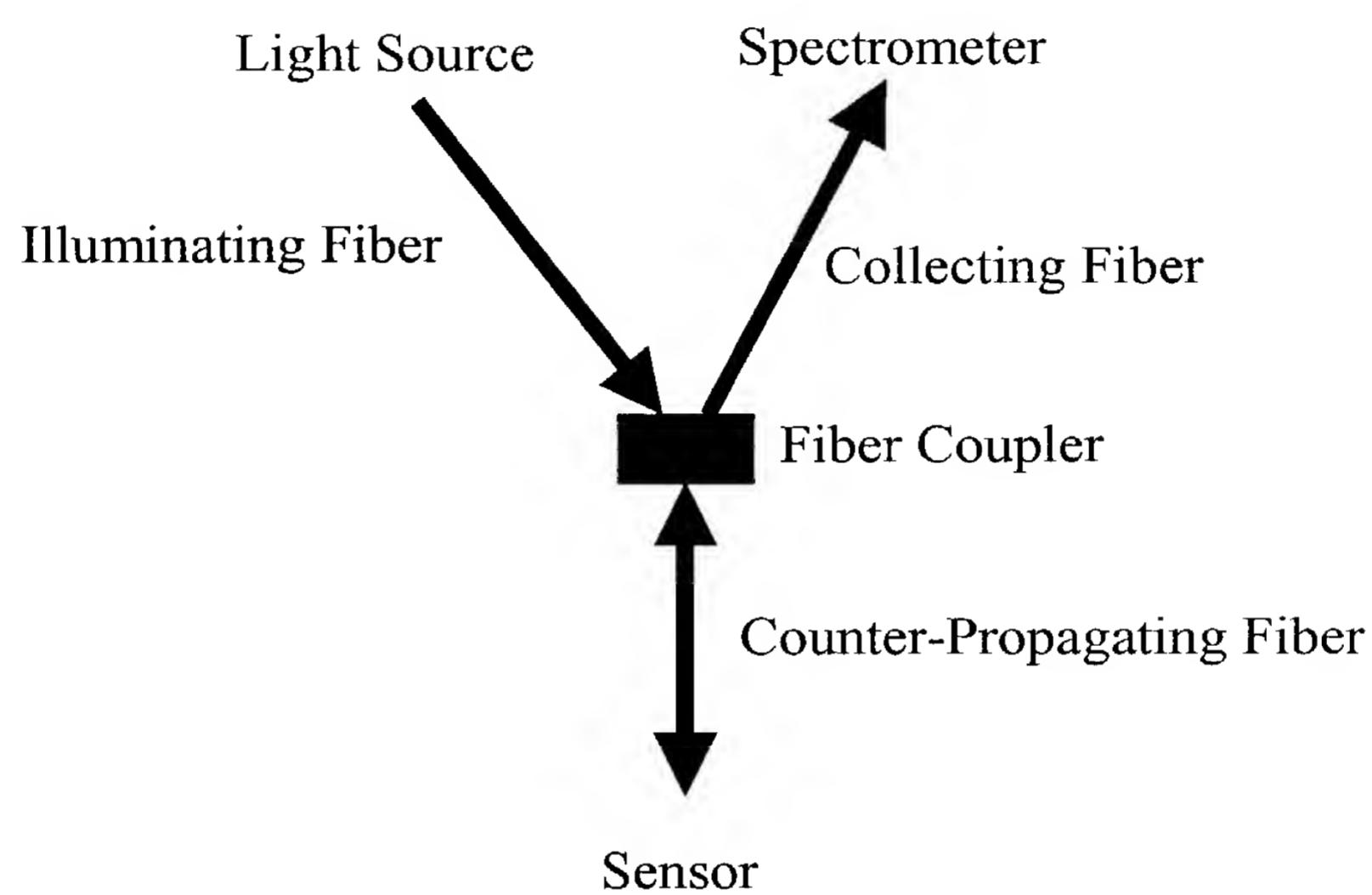


Figure 18

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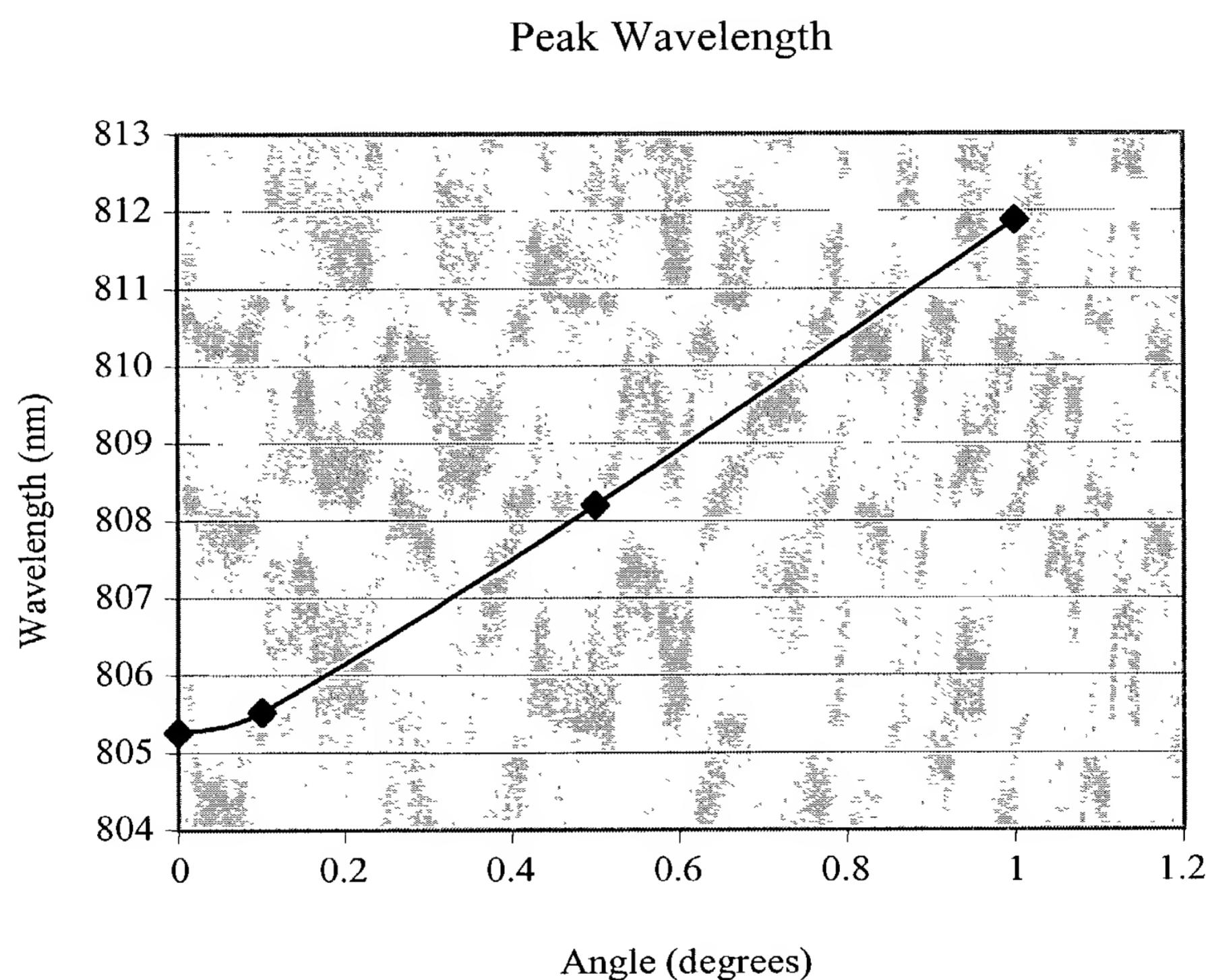


Figure 19

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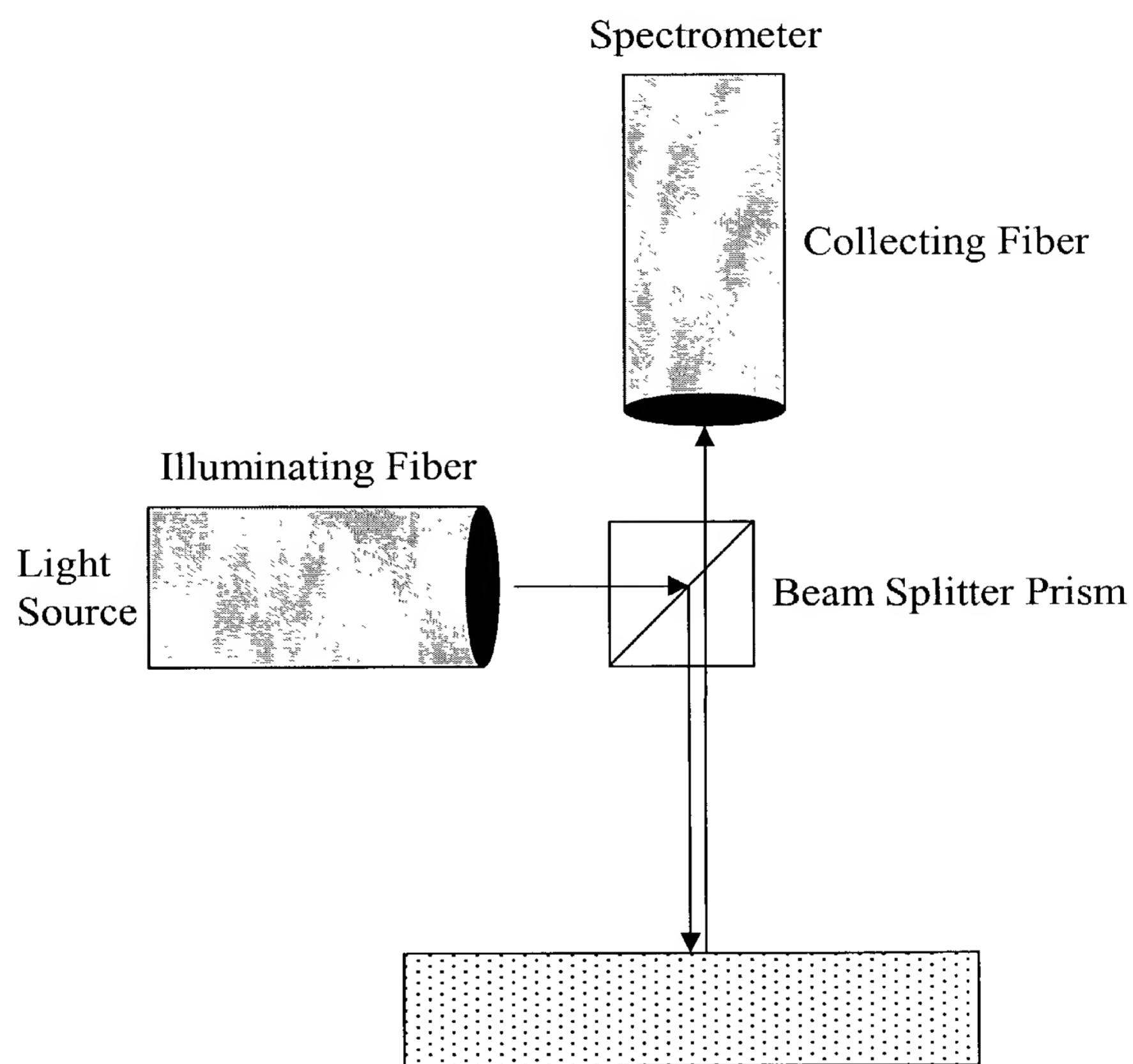


Figure 20



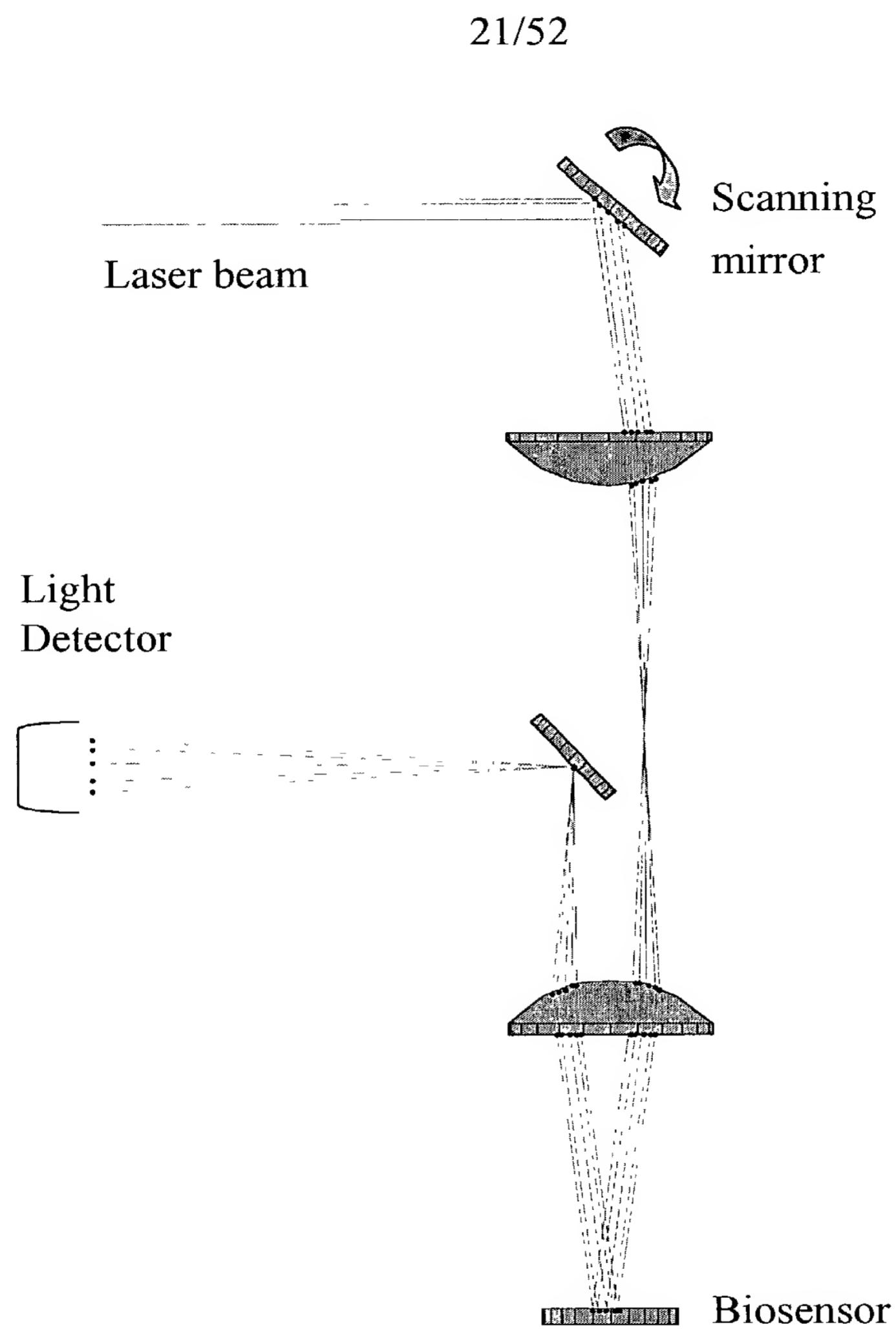


Figure 21

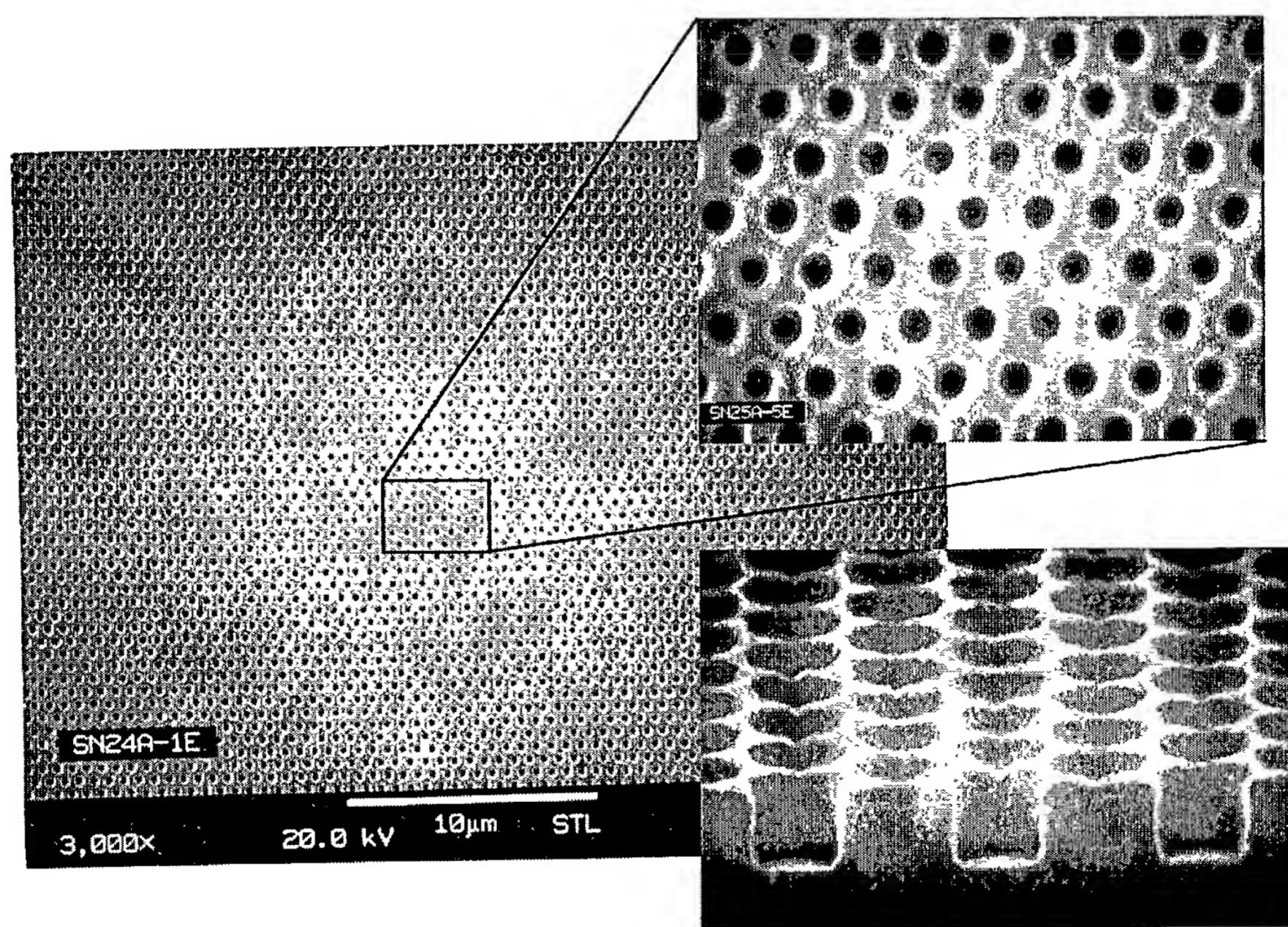


Figure 22

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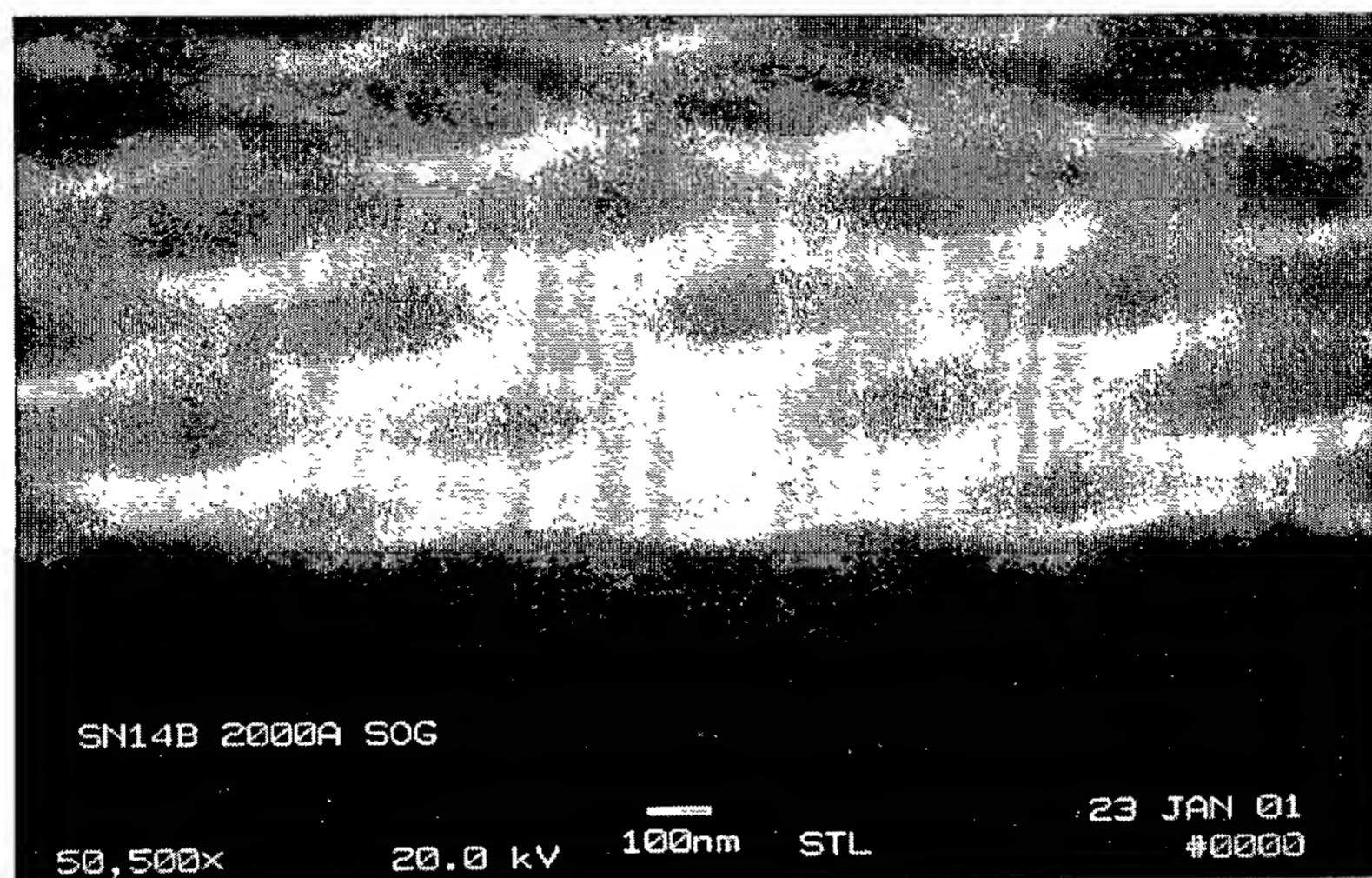


Figure 23



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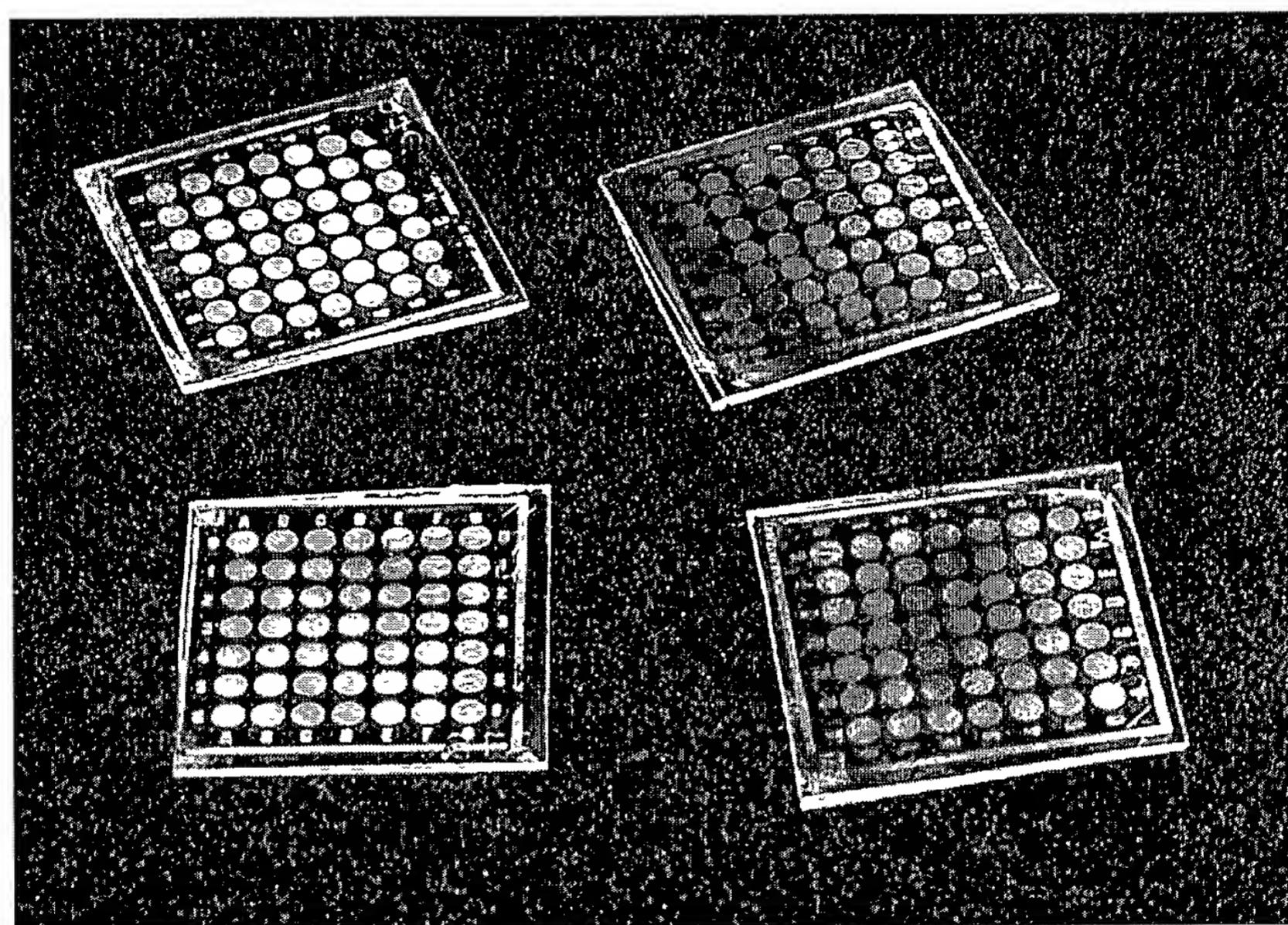


Figure 24

1970-02-03 1970-02-03

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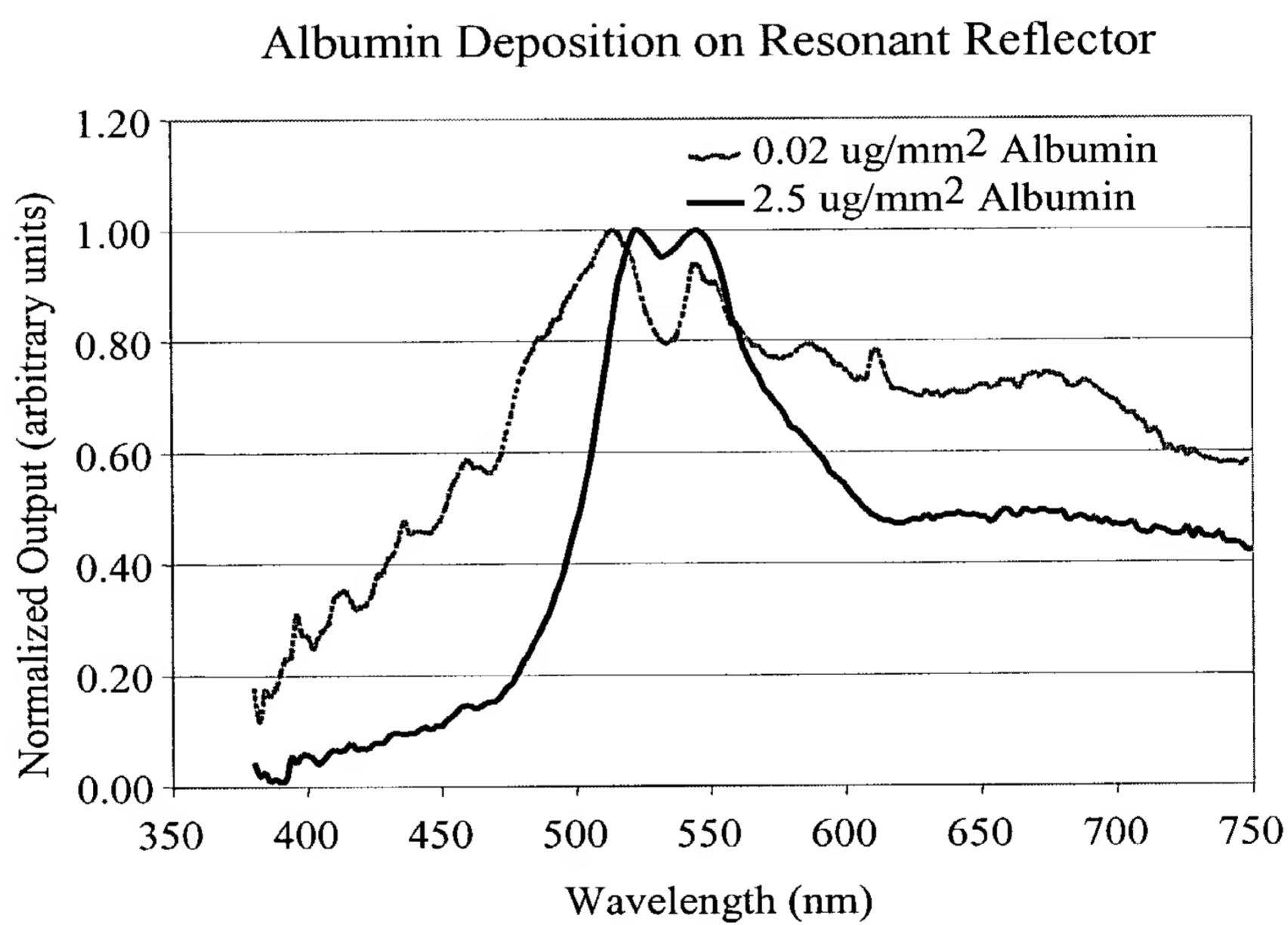


Figure 25

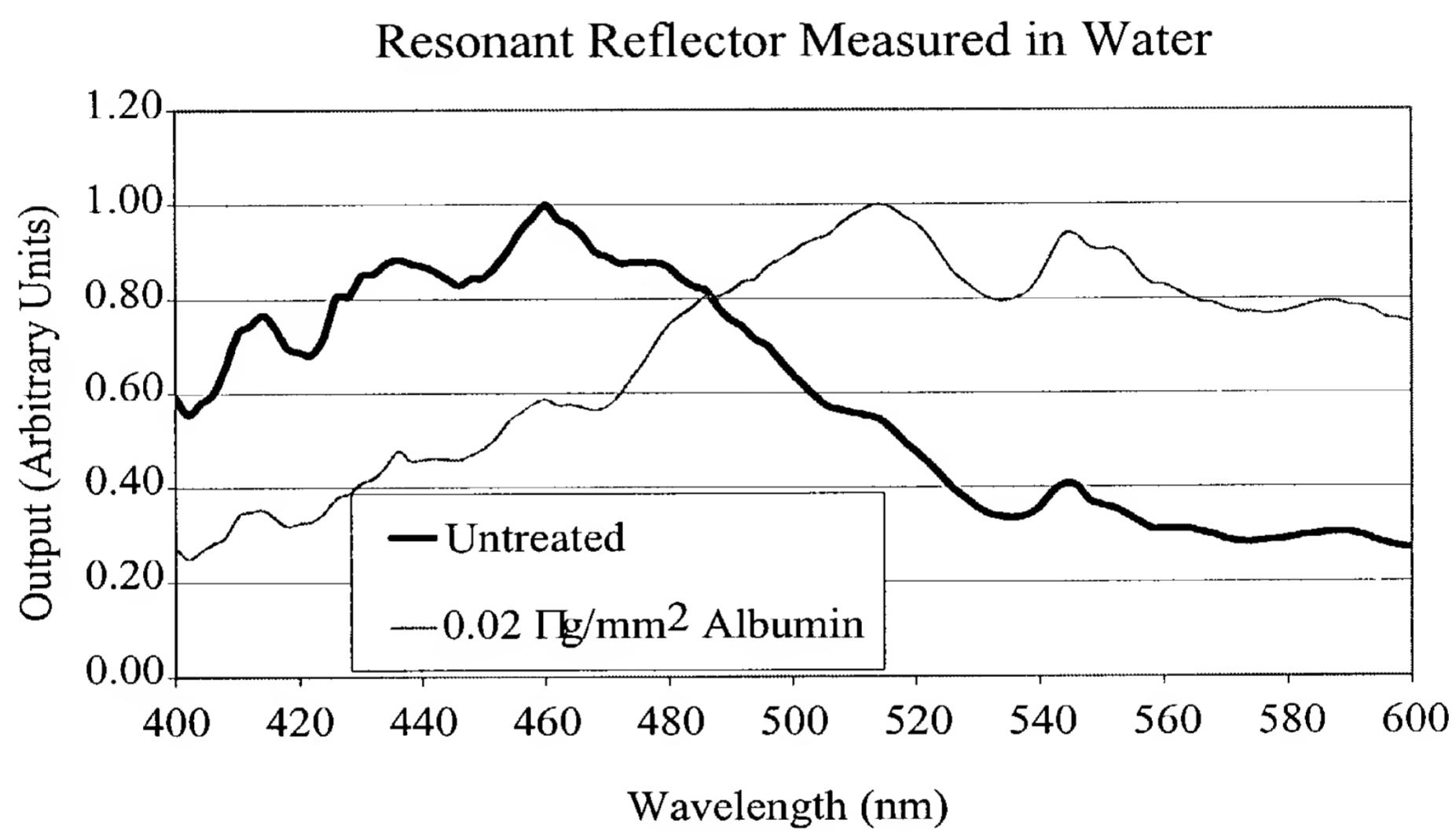


Figure 26

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Bacteria immobilization on structure

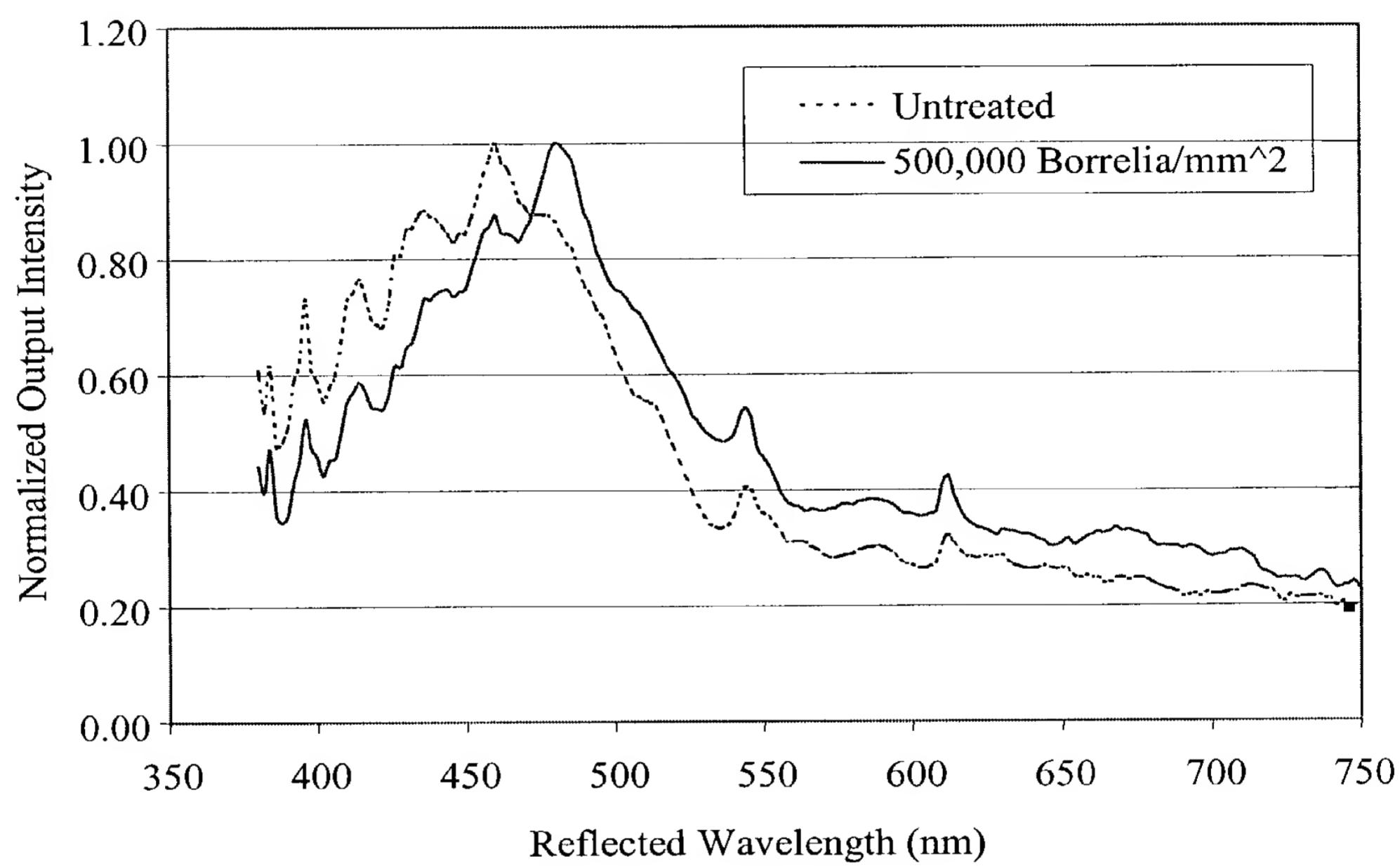


Figure 27

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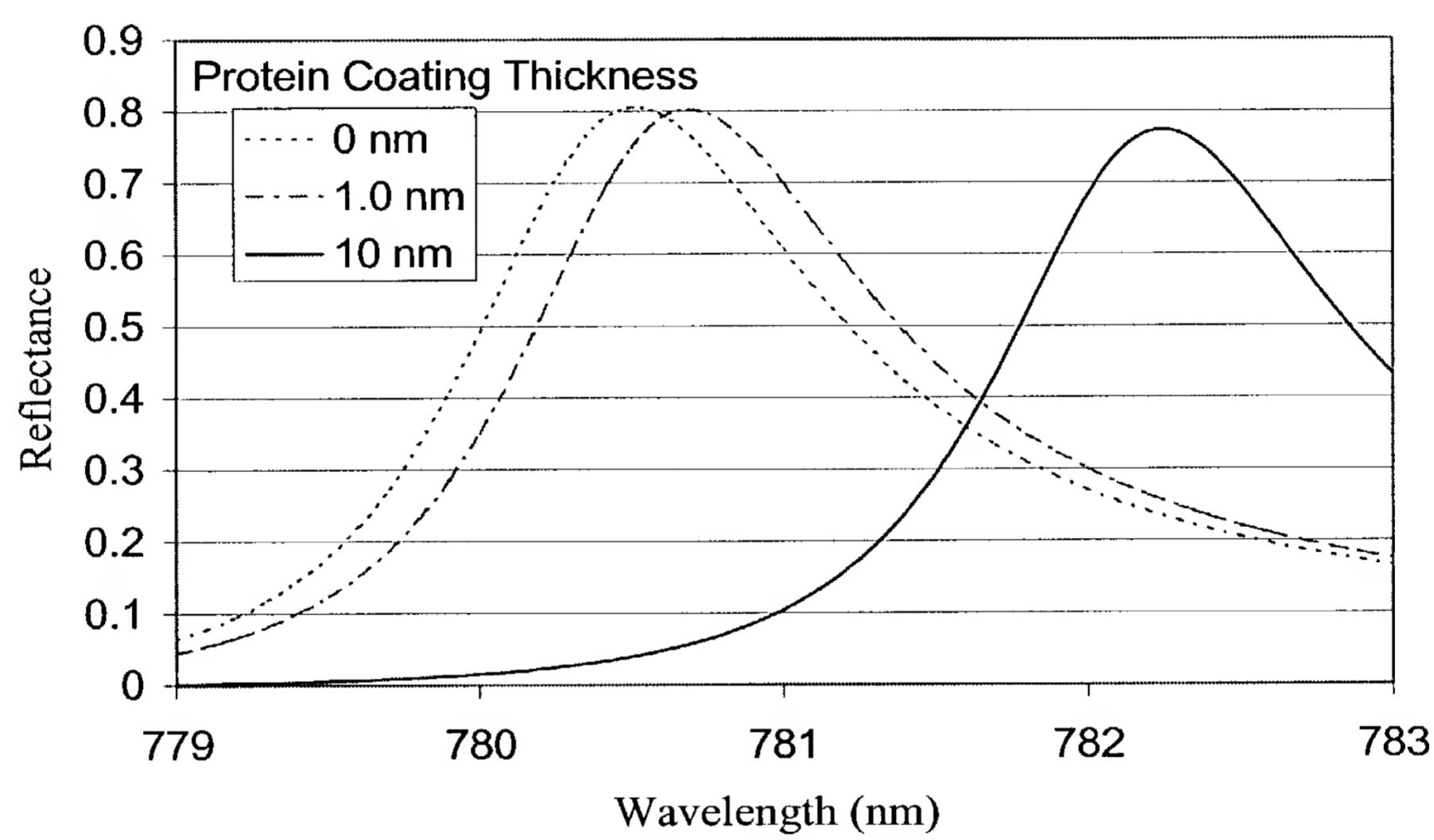


Figure 28

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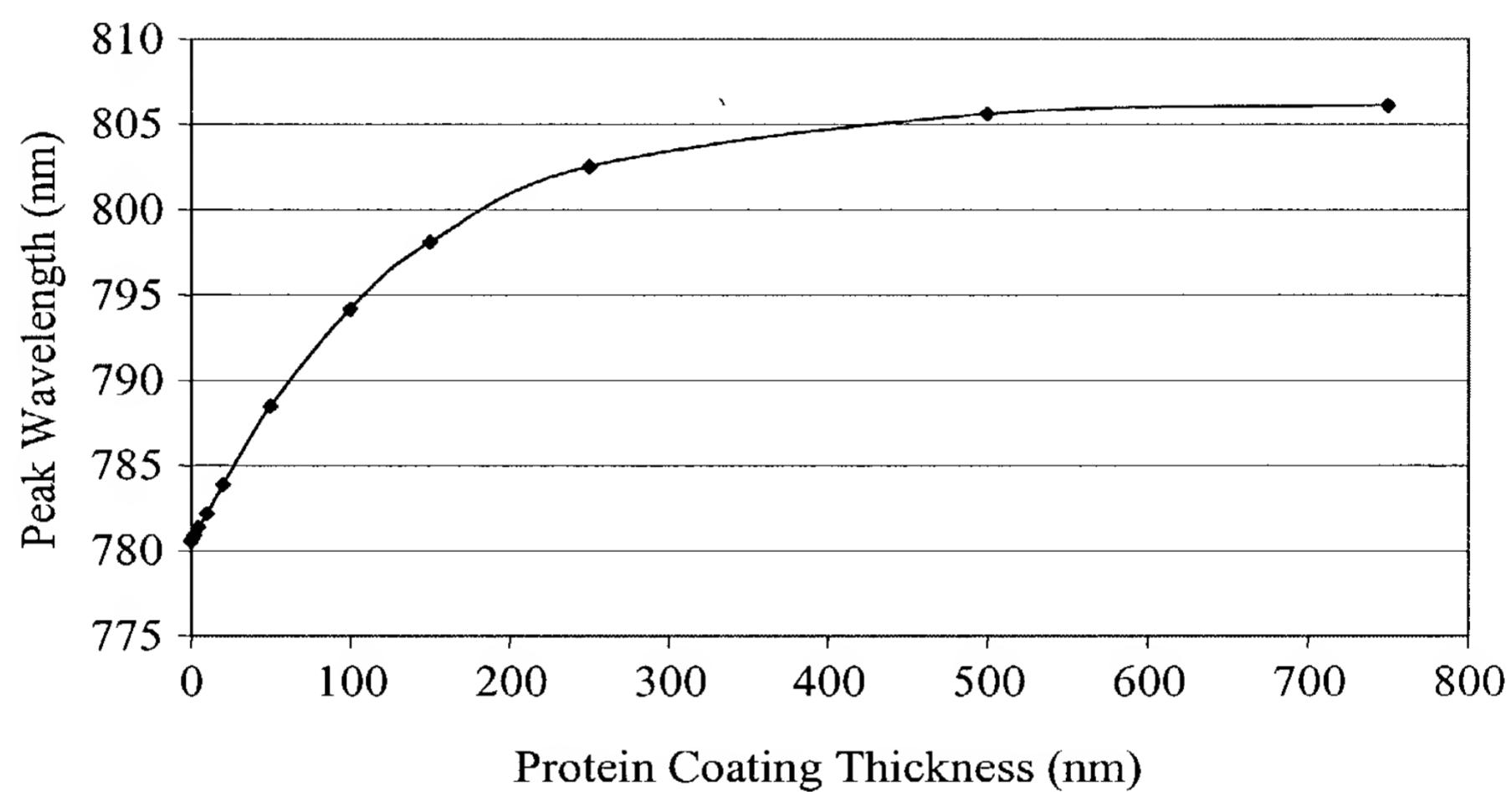


Figure 29

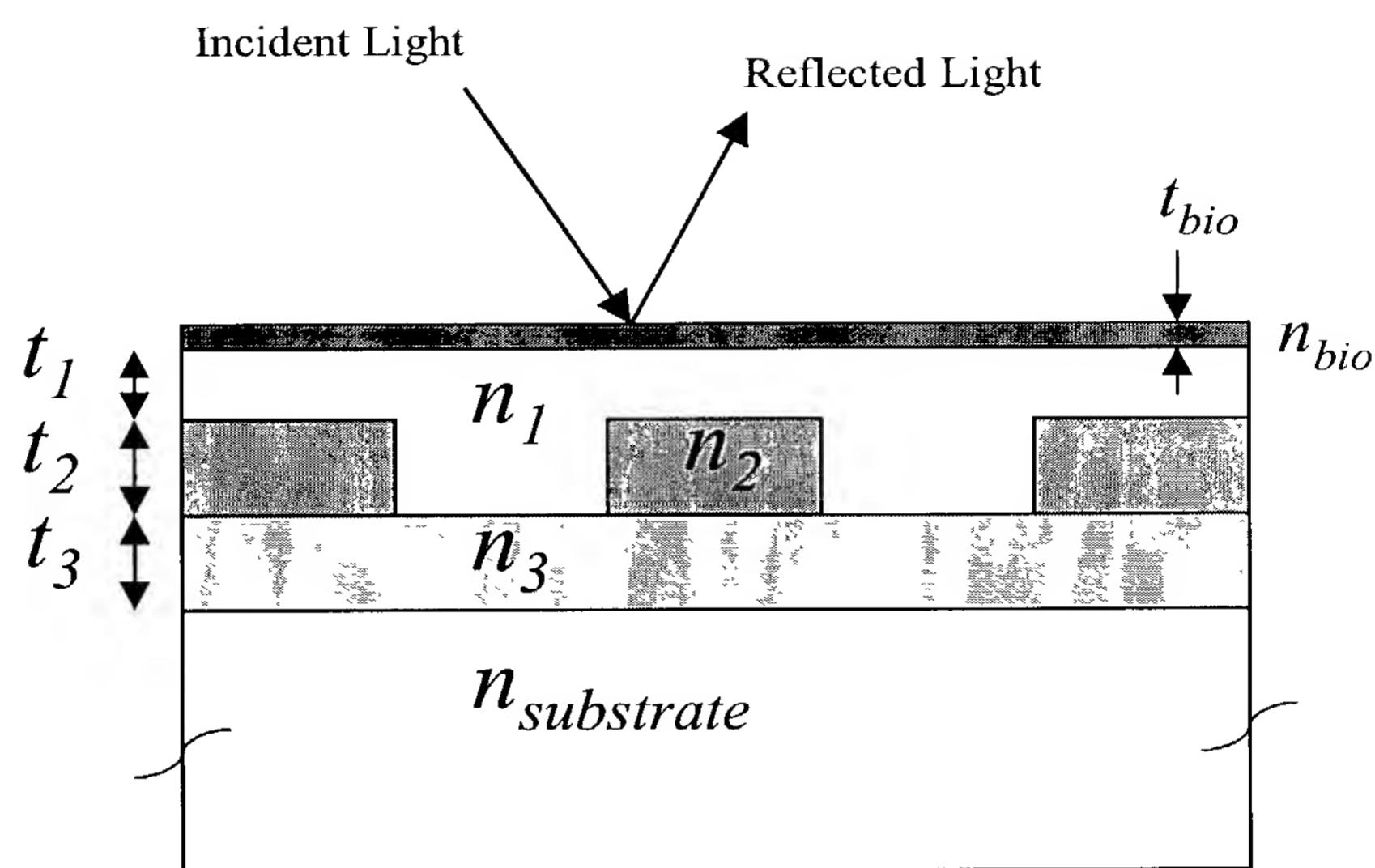
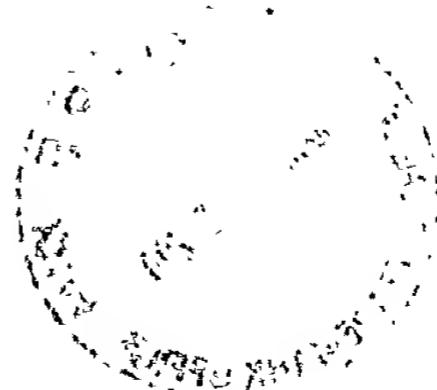


Figure 30



Reflected Resonance with Deposited Protein

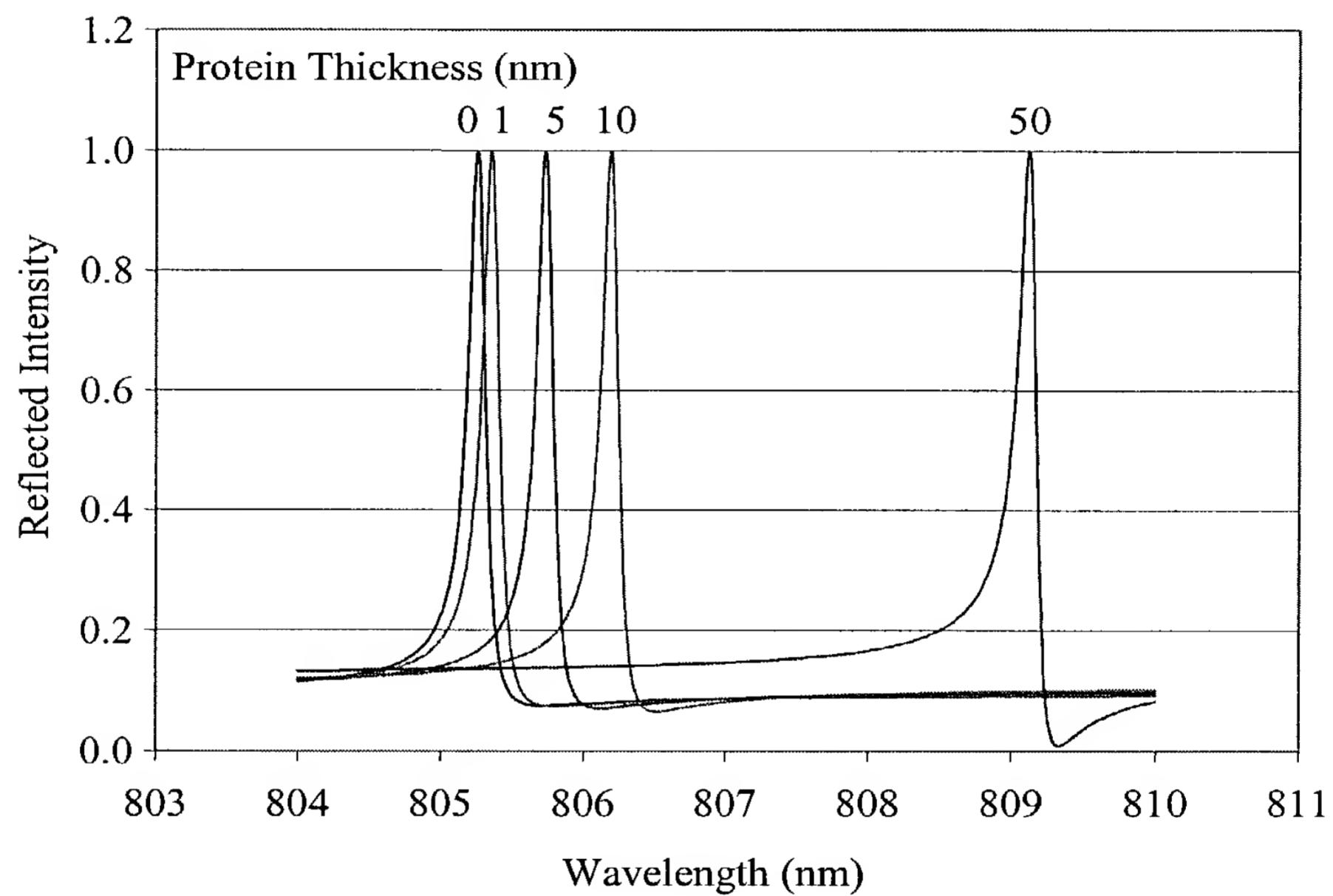


Figure 31

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Resonant Peak Wavelength Dependence on Deposited Protein Thickness

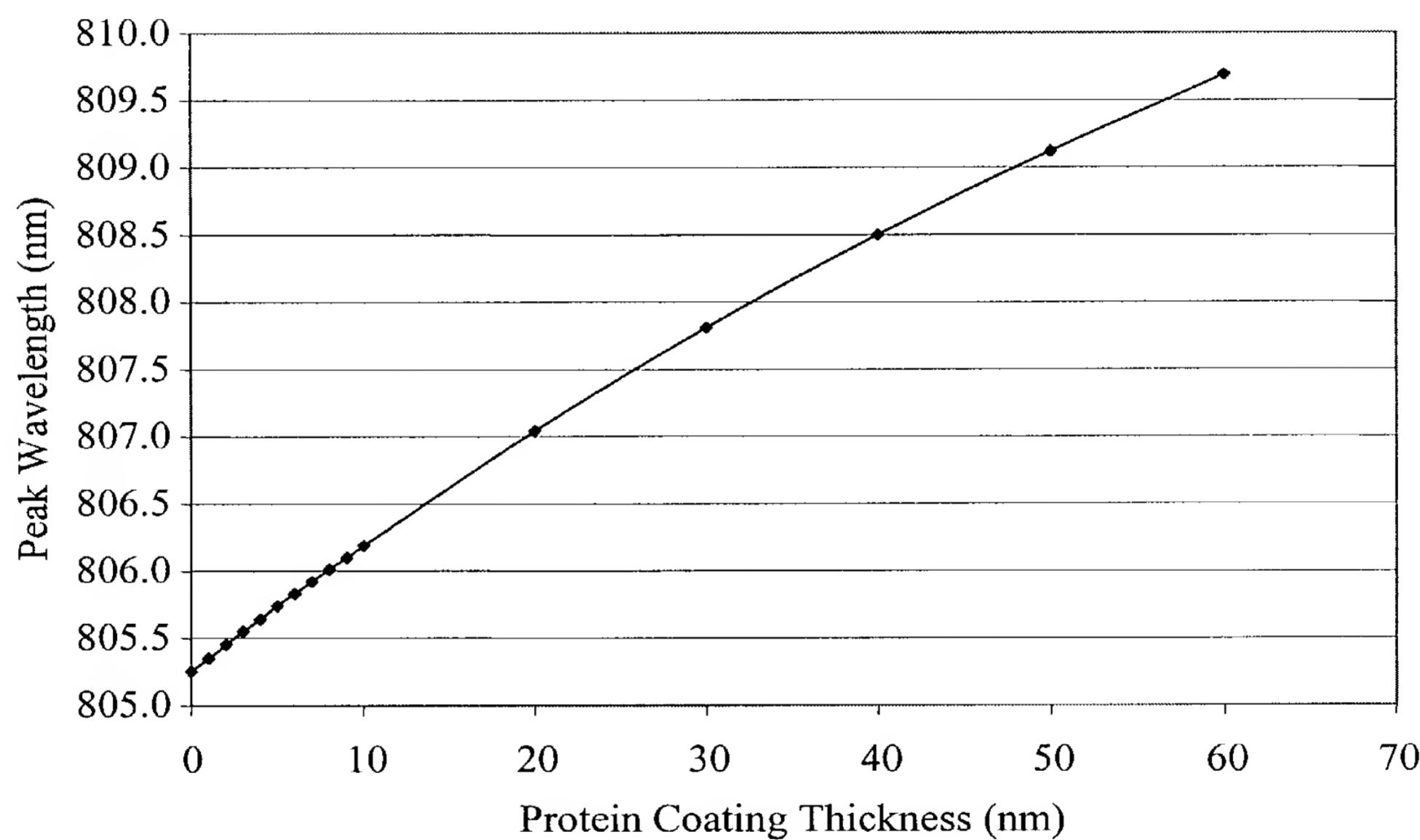


Figure 32

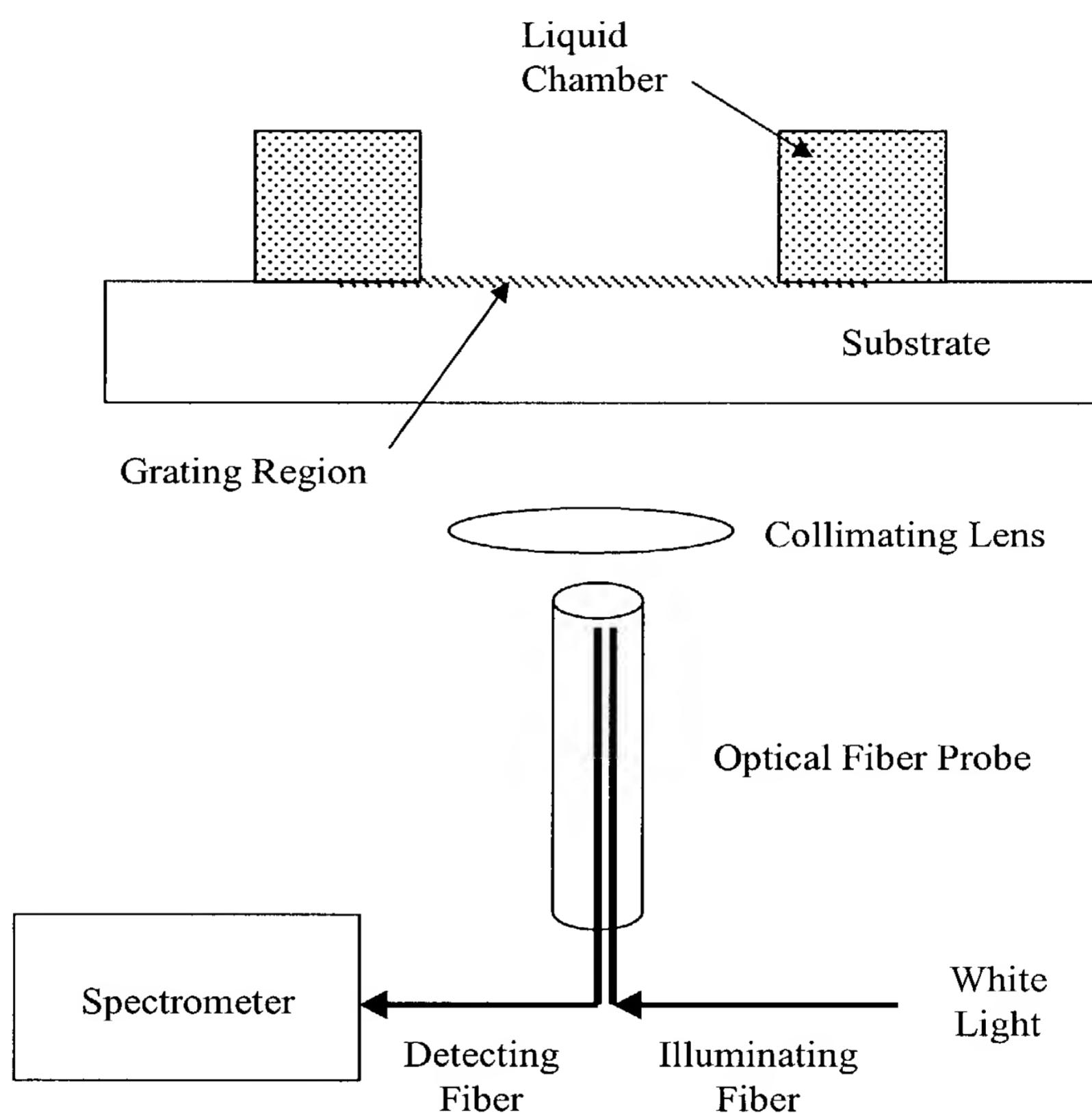


Figure 33



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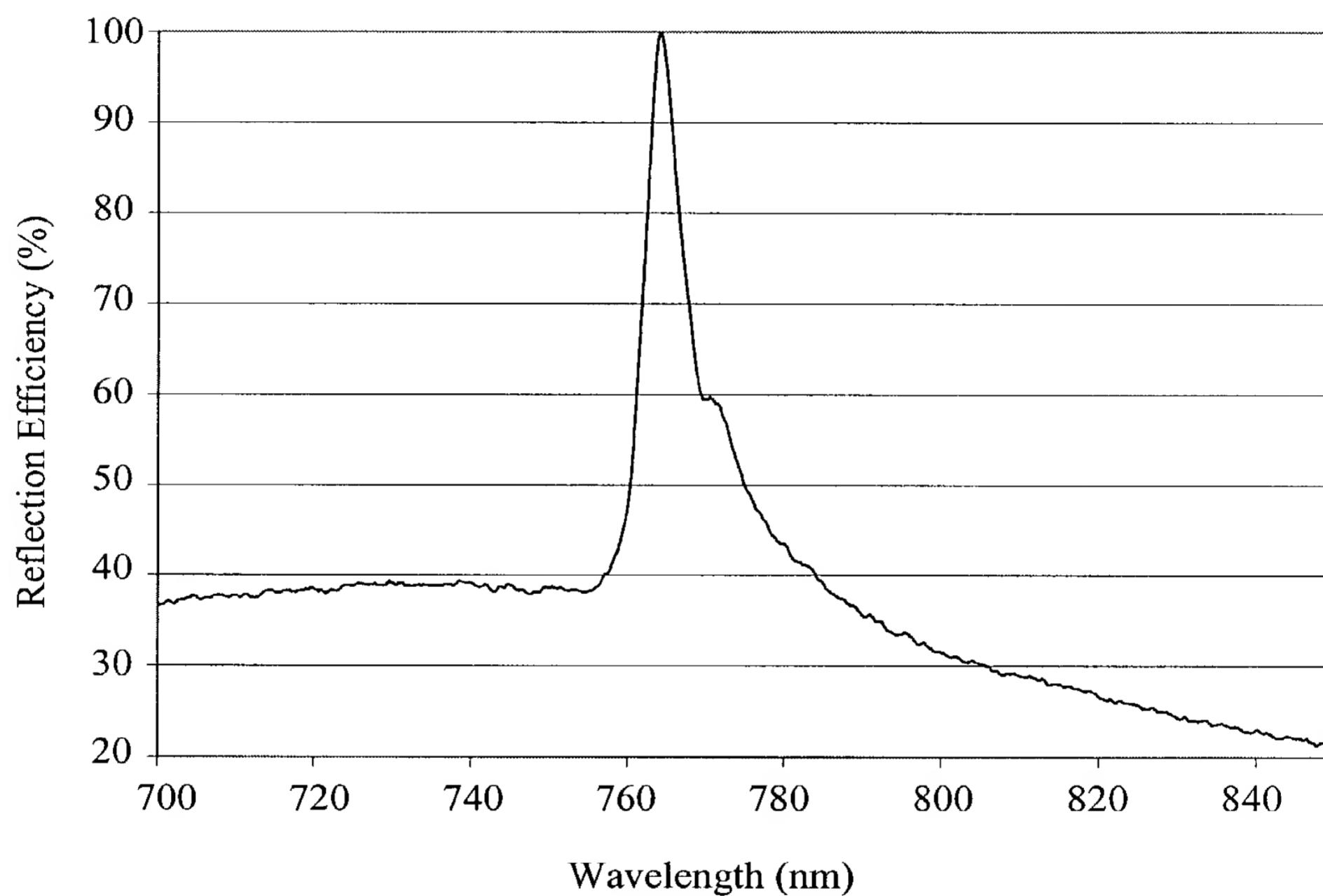


Figure 34

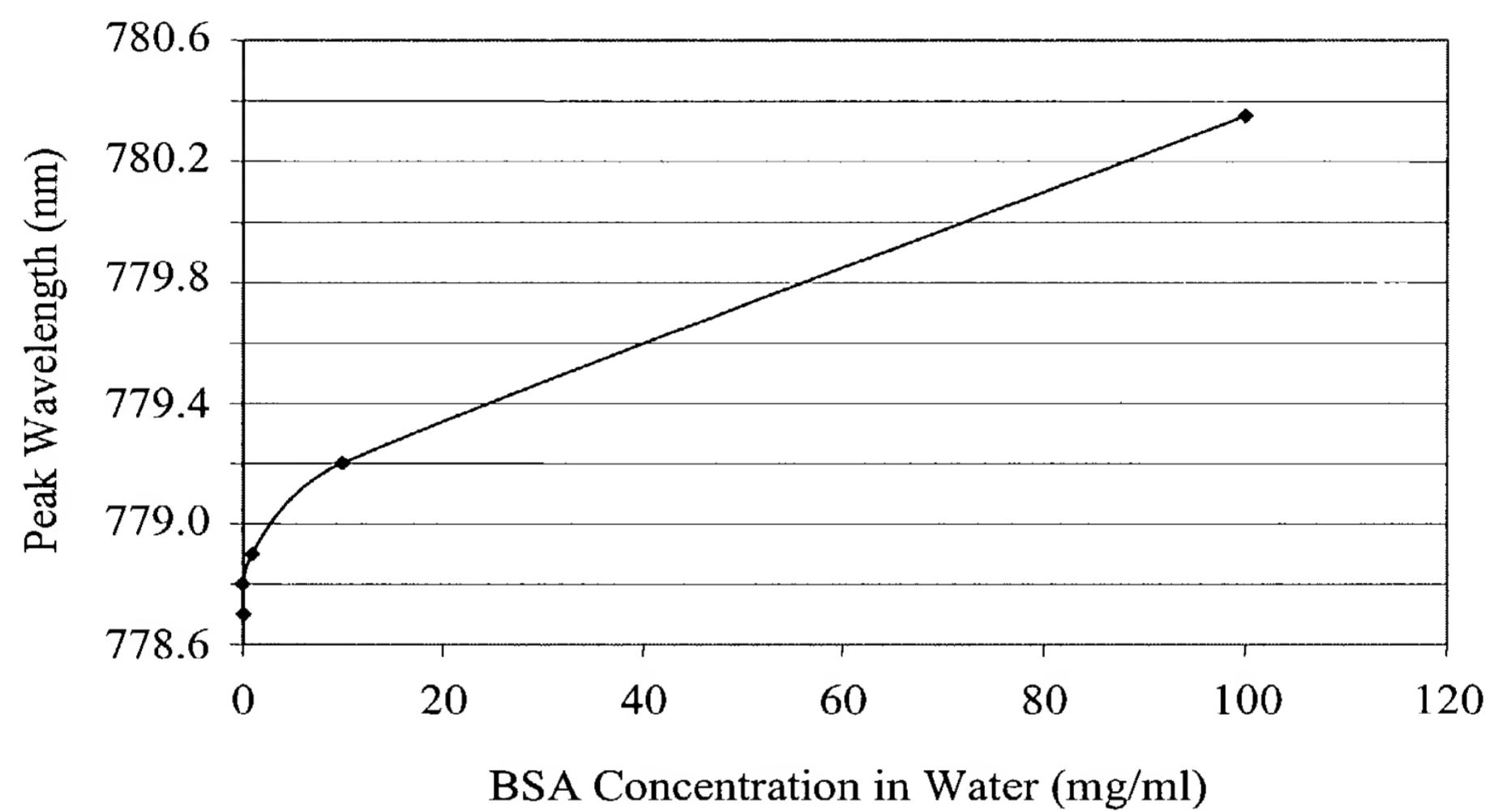


Figure 35

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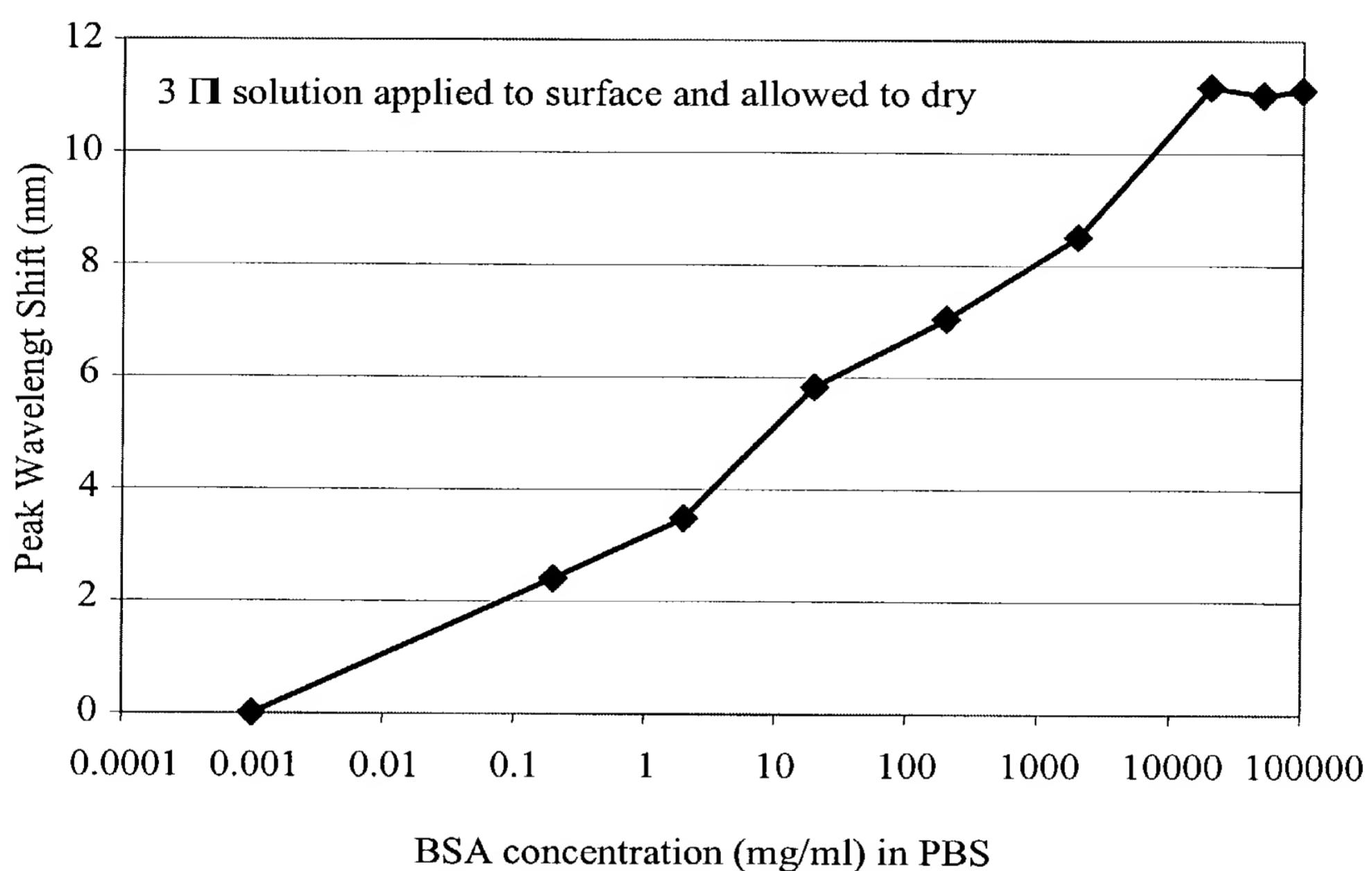


Figure 36

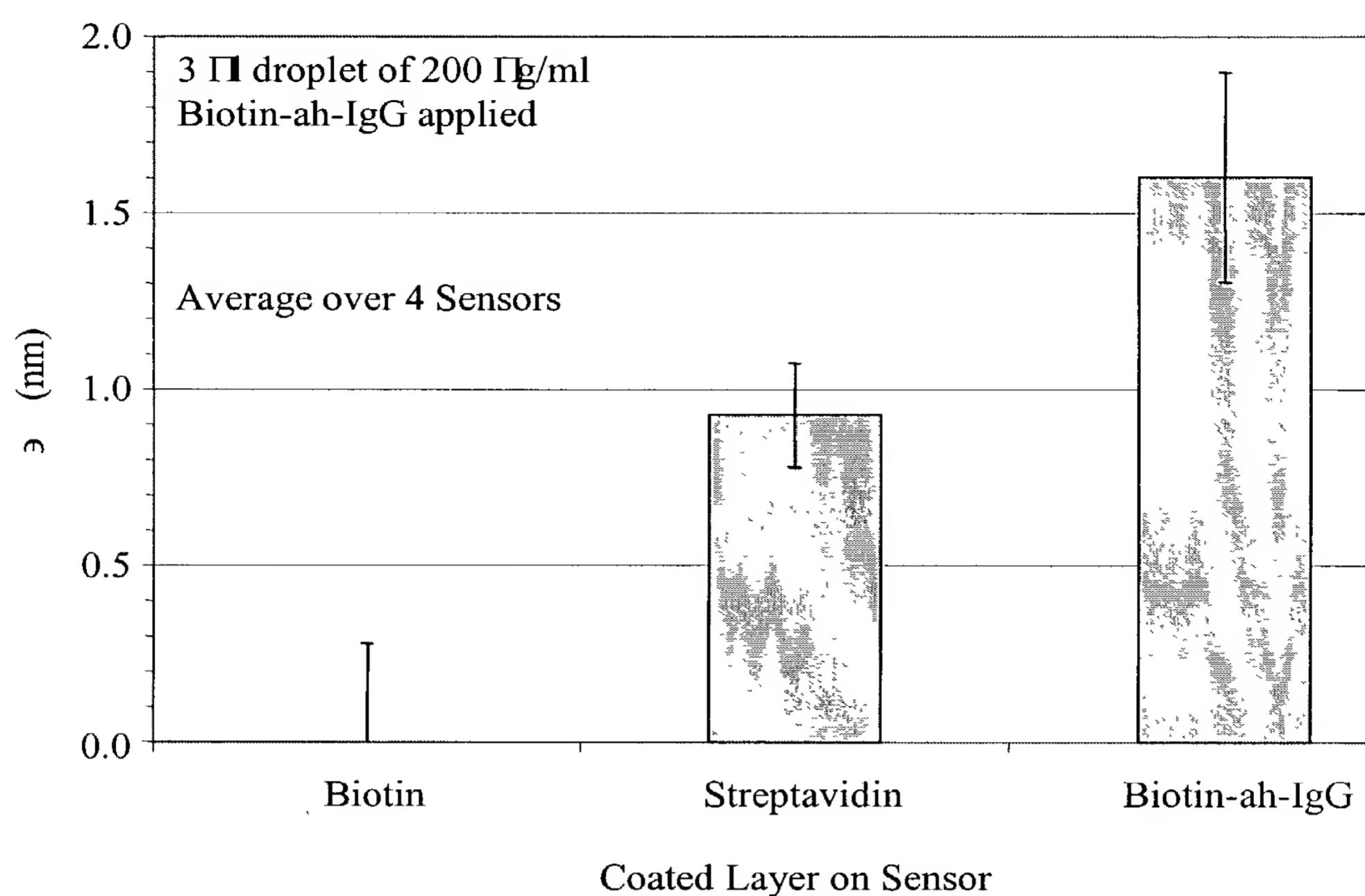


Figure 37A

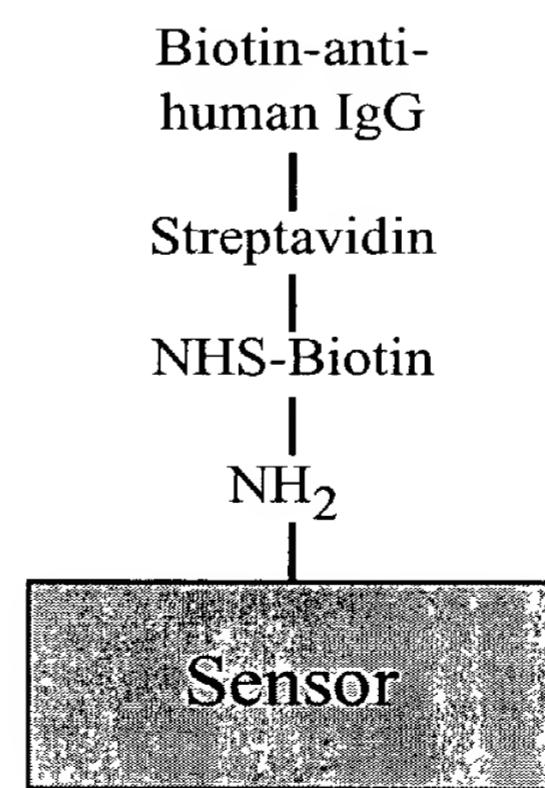


Figure 37B

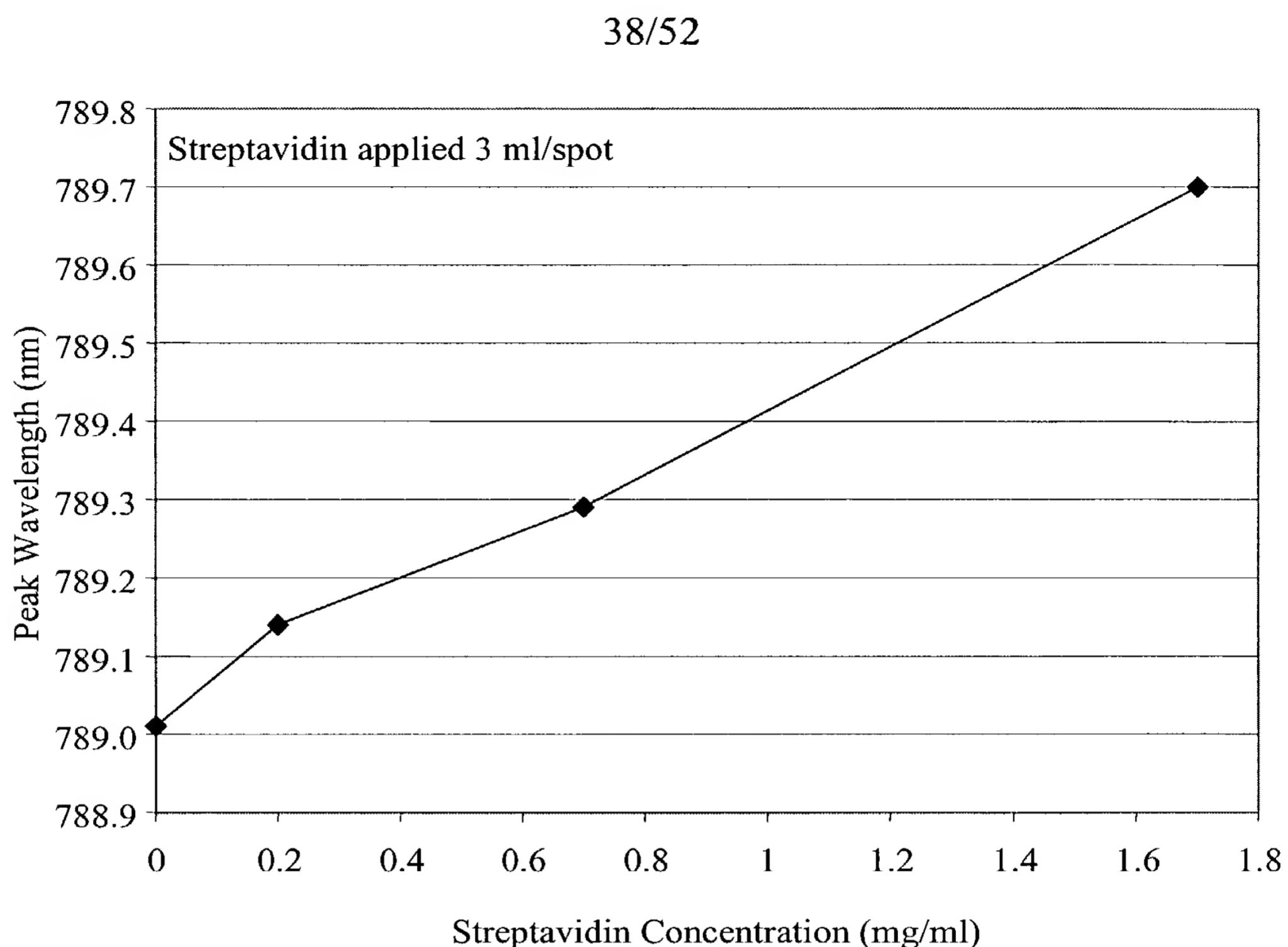


Figure 38A

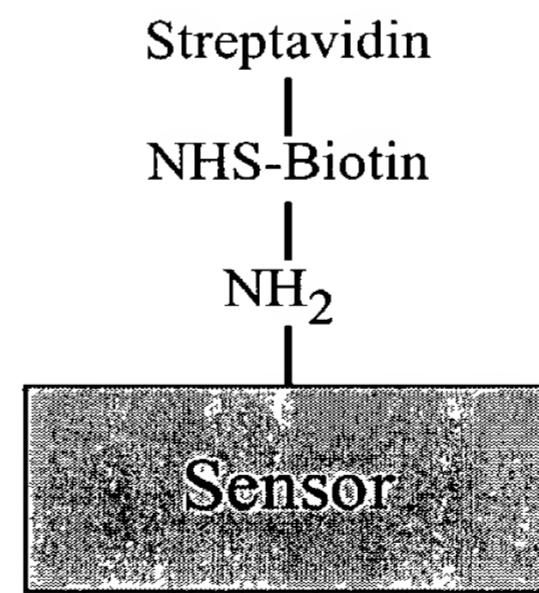


Figure 38B

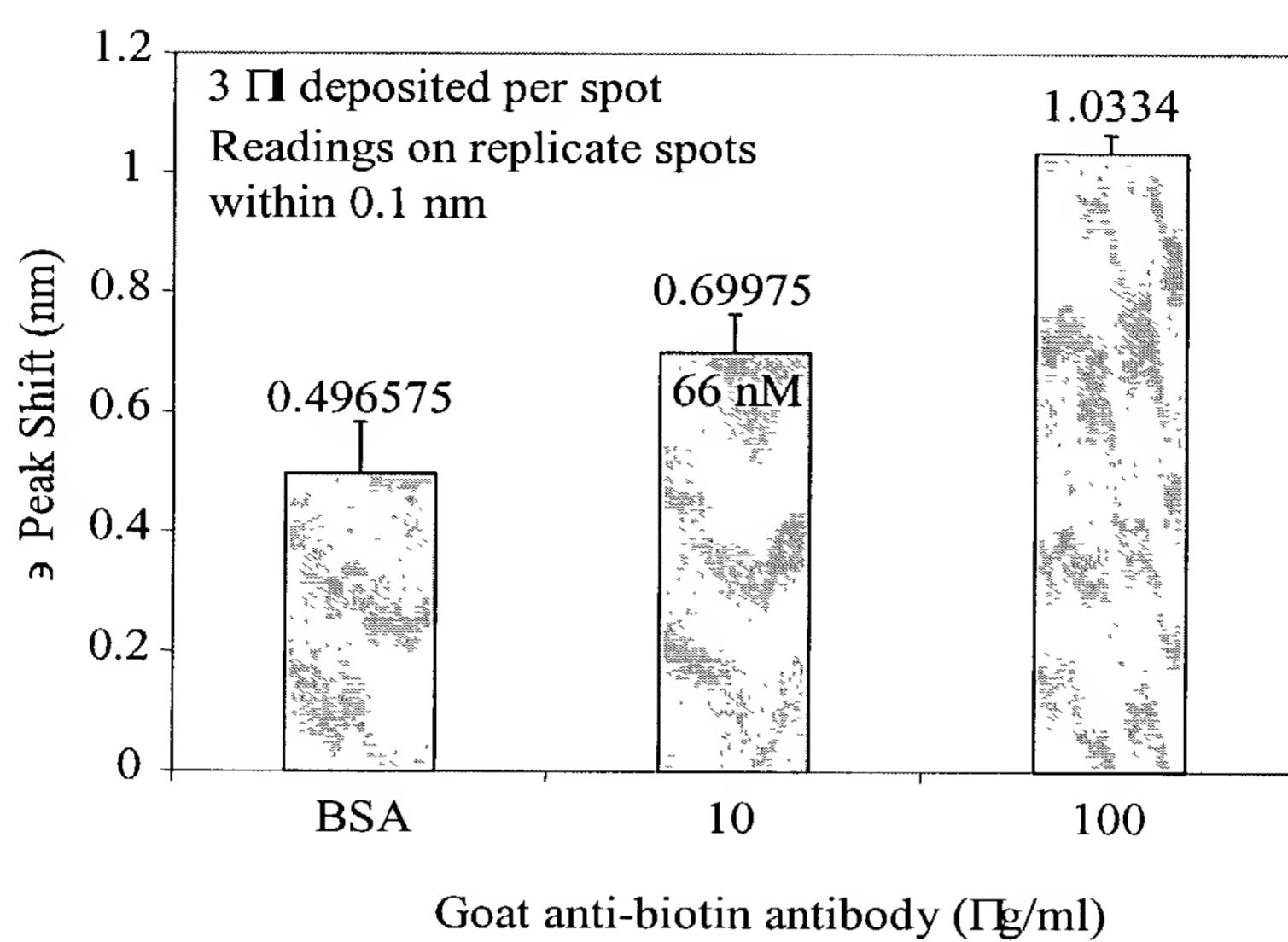


Figure 39A

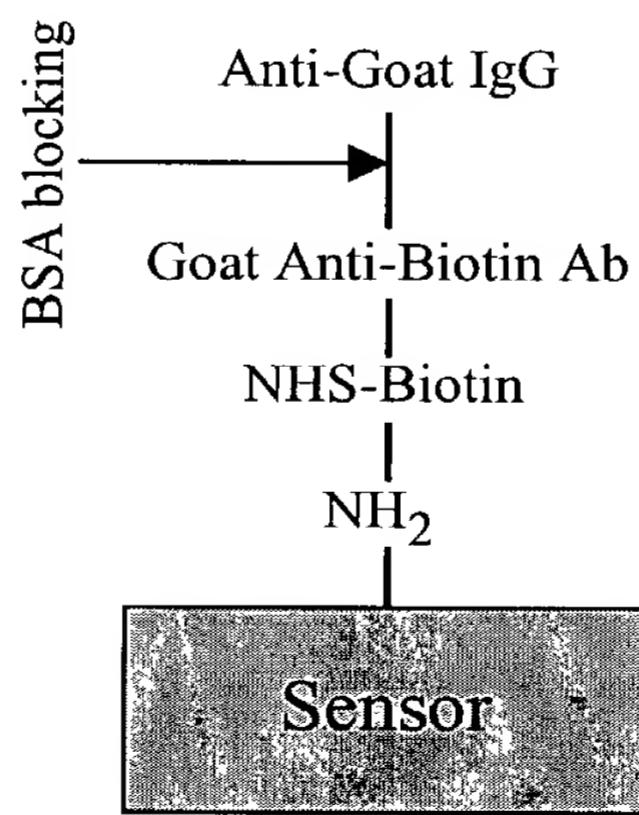


Figure 39B

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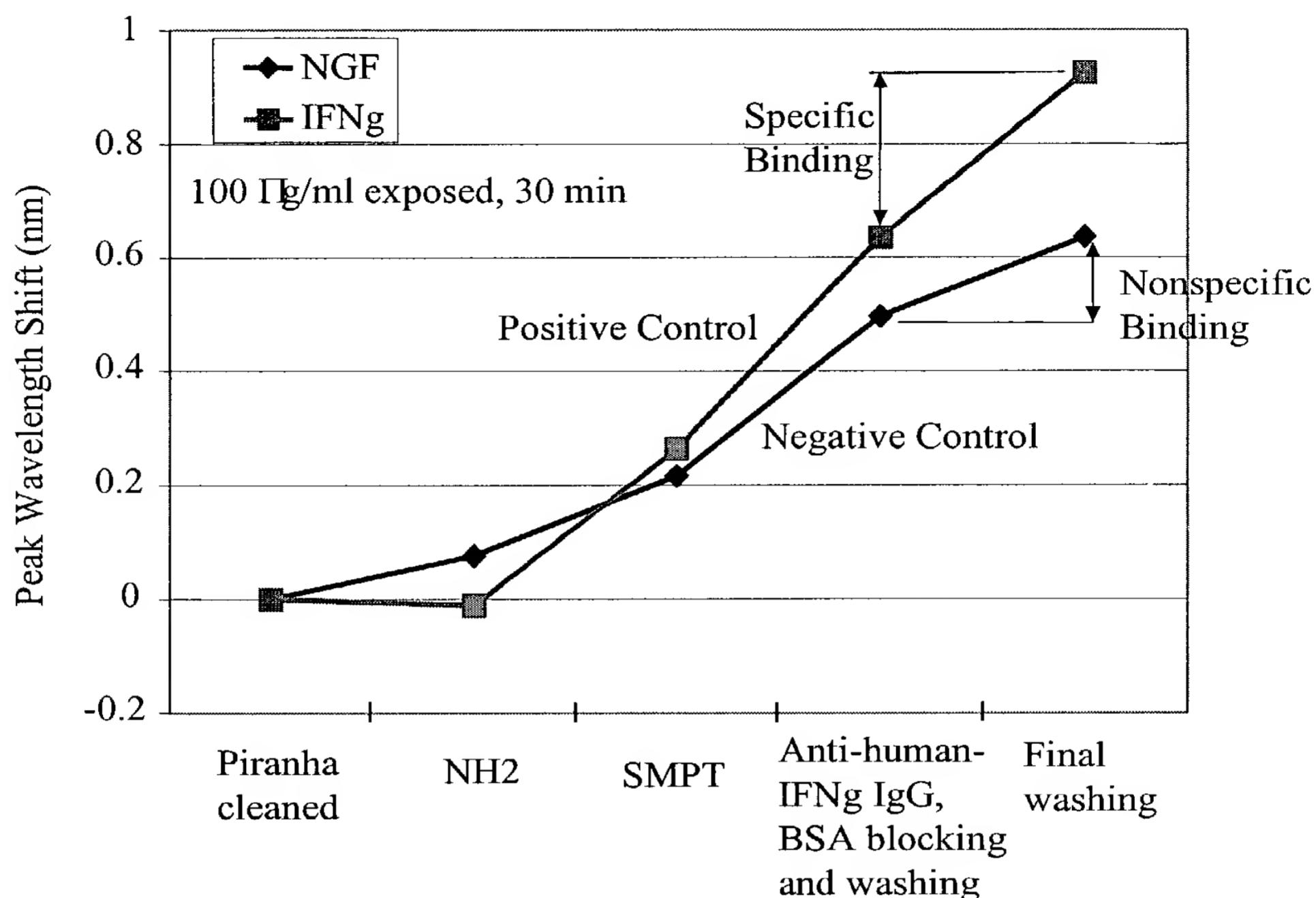


Figure 40A

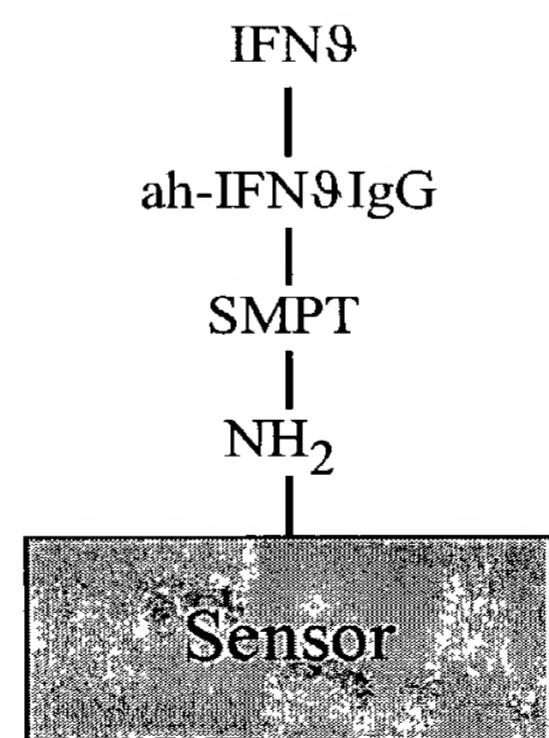


Figure 40B

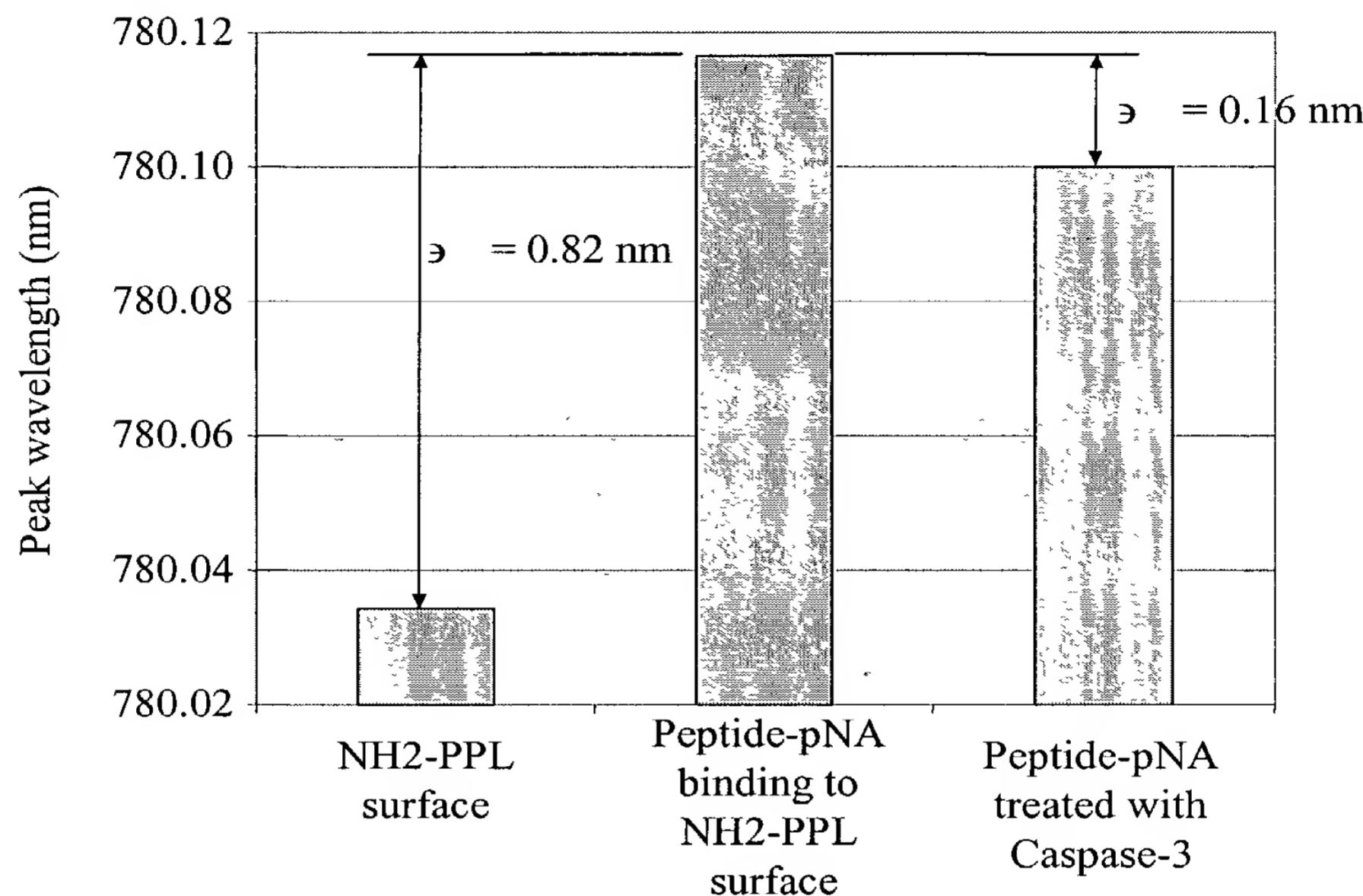


Figure 41A

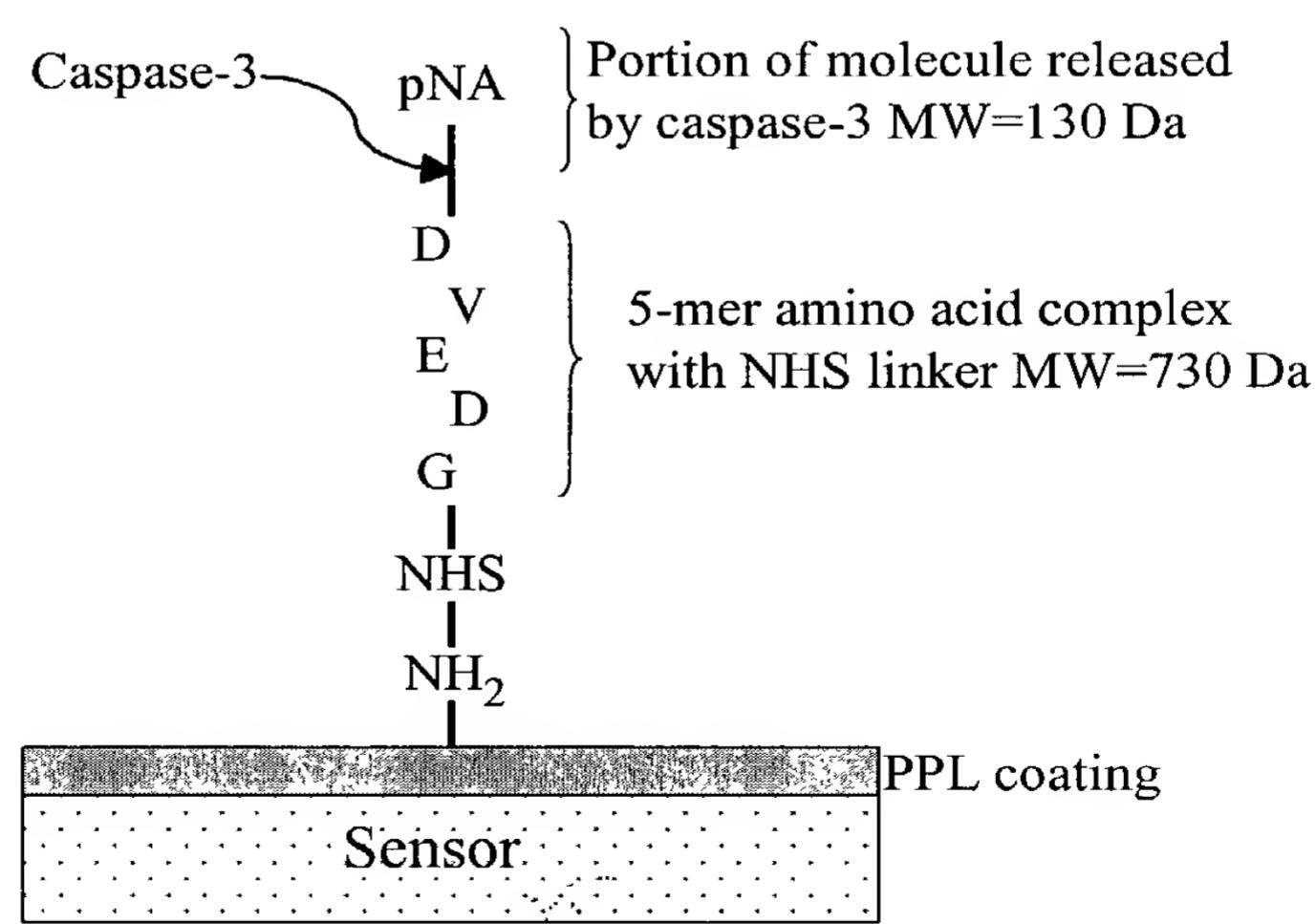


Figure 41B

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Measured shifting of the resonant wavelength caused by the binding of various biomolecular layers.

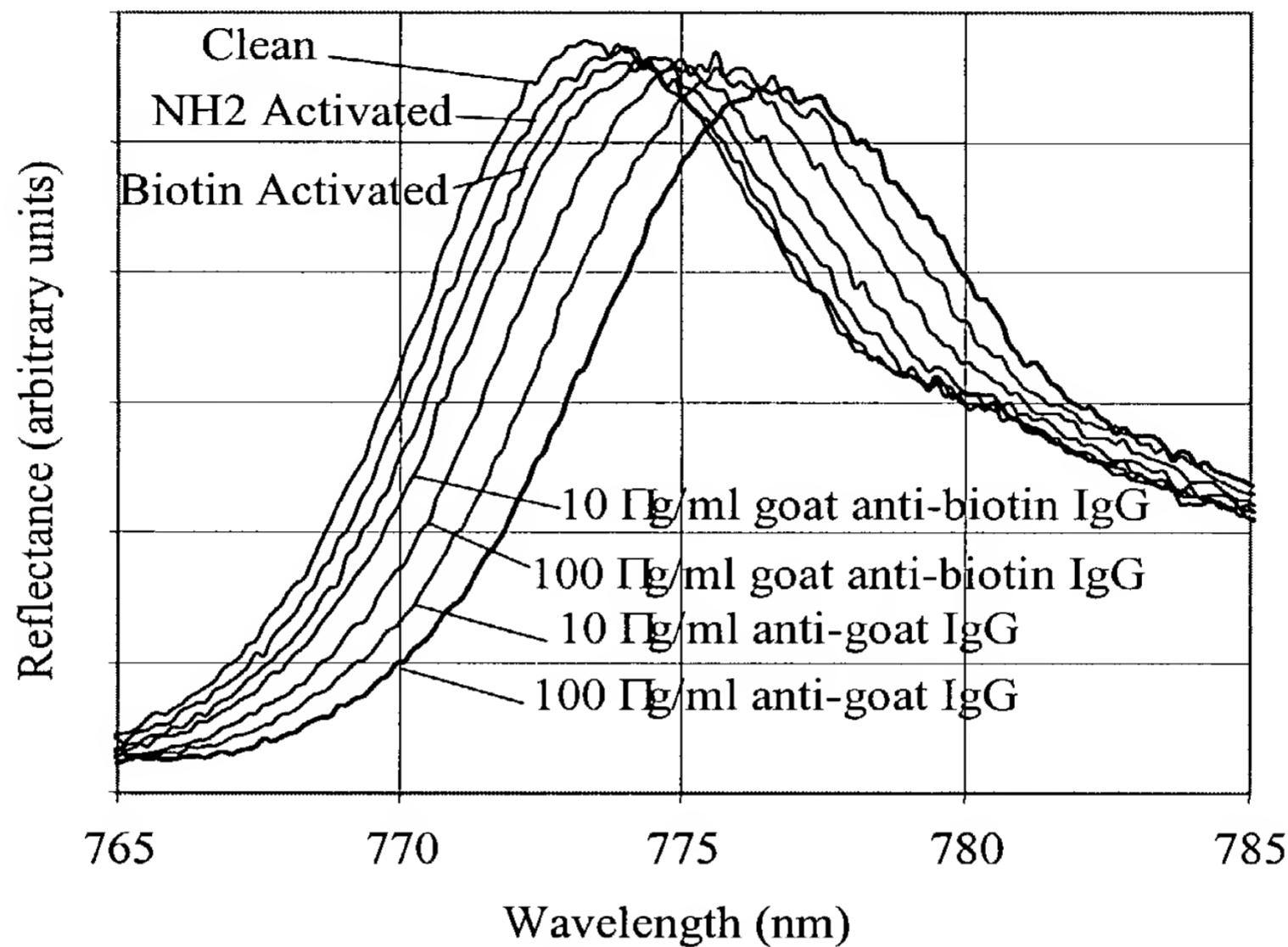


Figure 42A

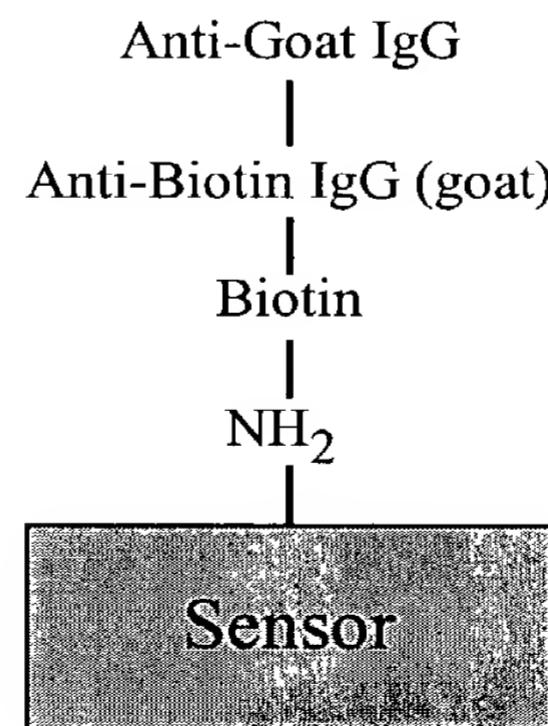


Figure 42B

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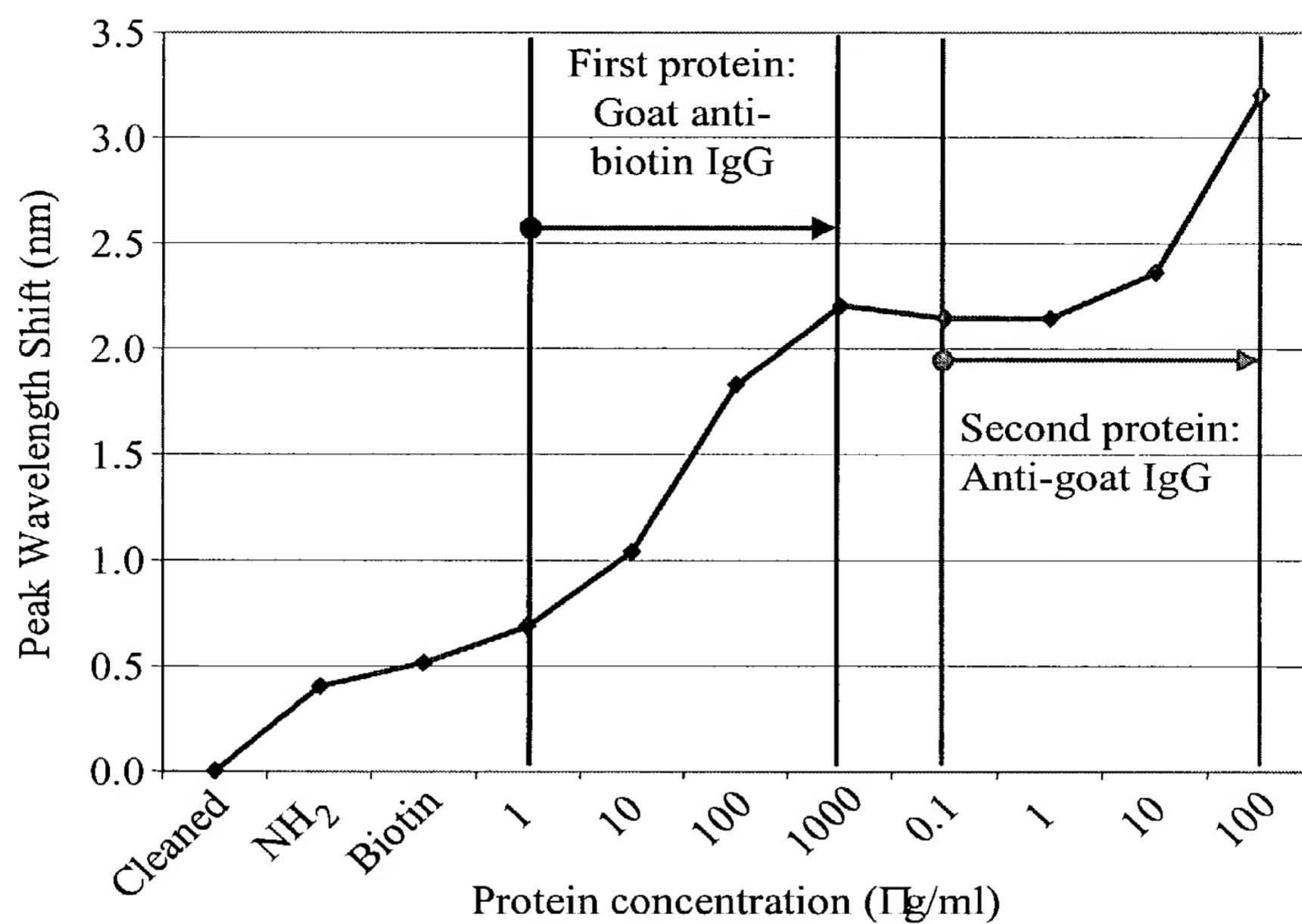


Figure 43A

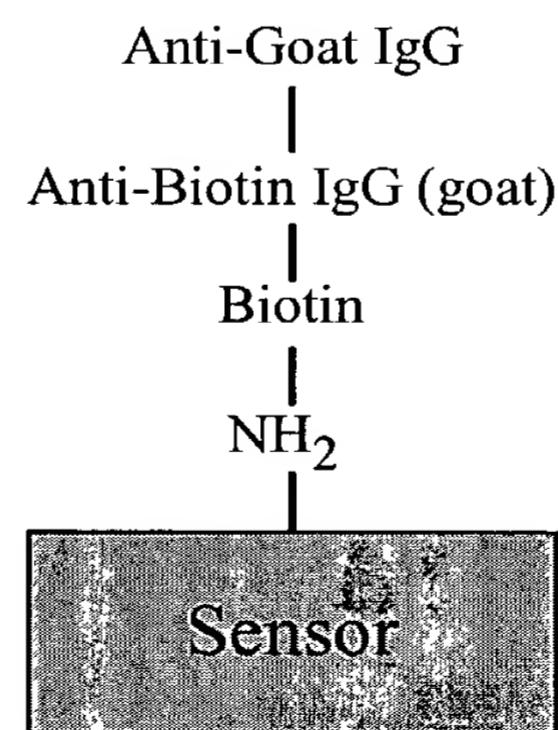


Figure 43B

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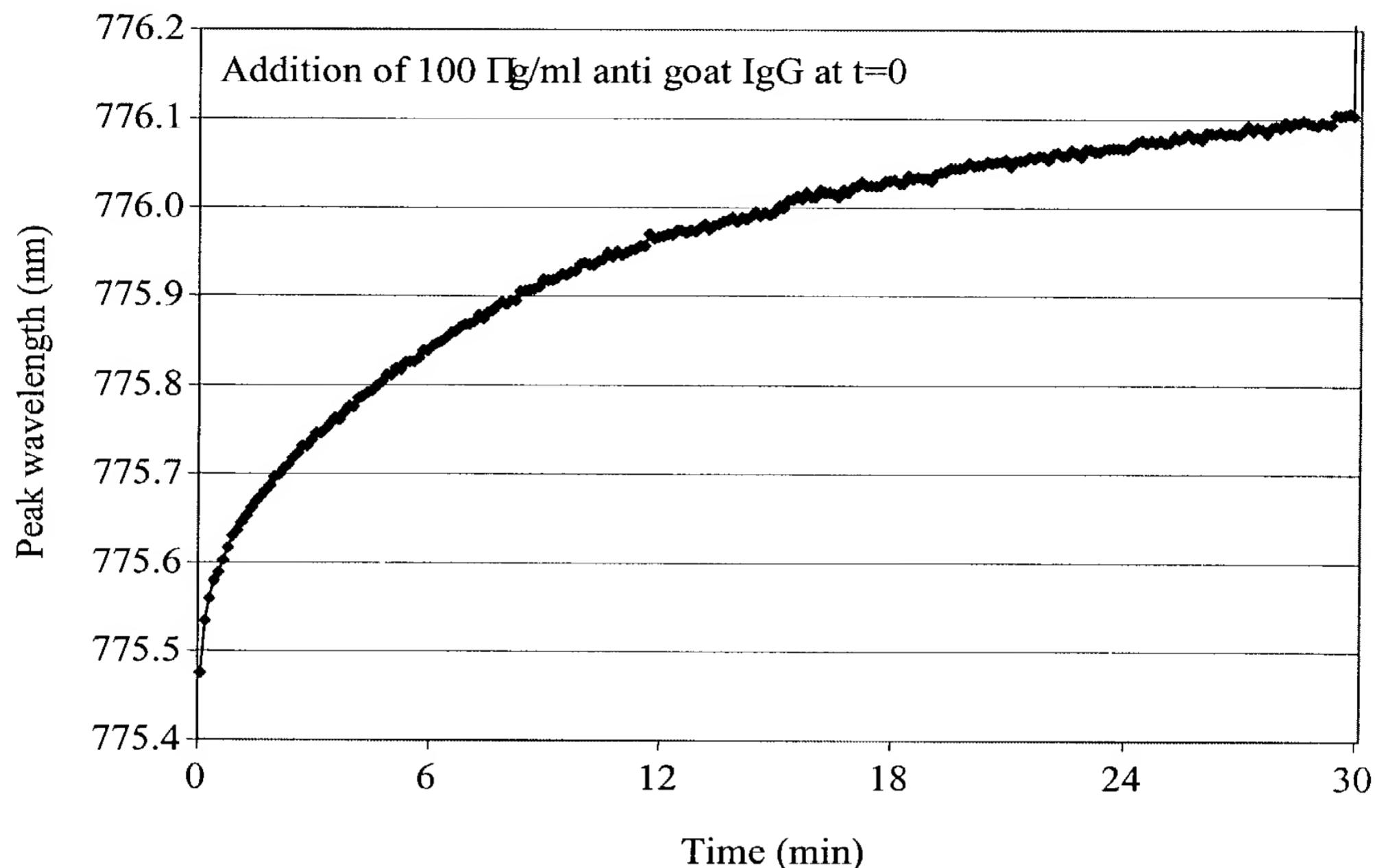


Figure 44A

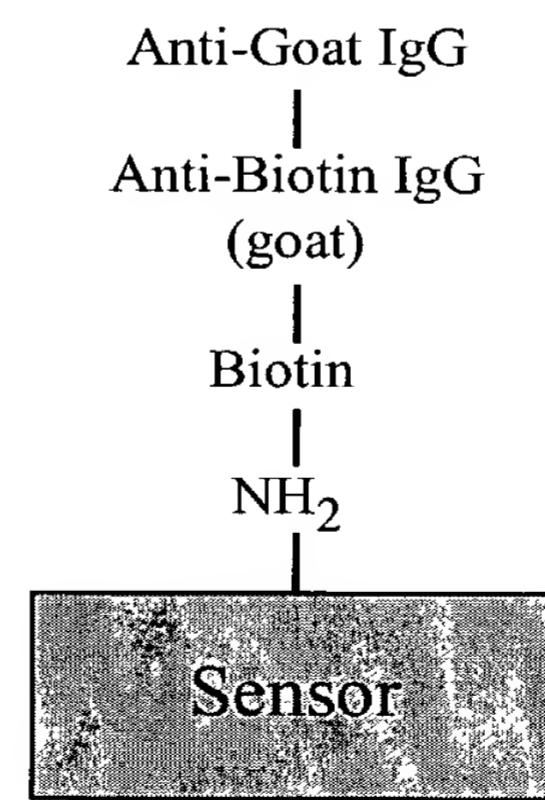


Figure 44B

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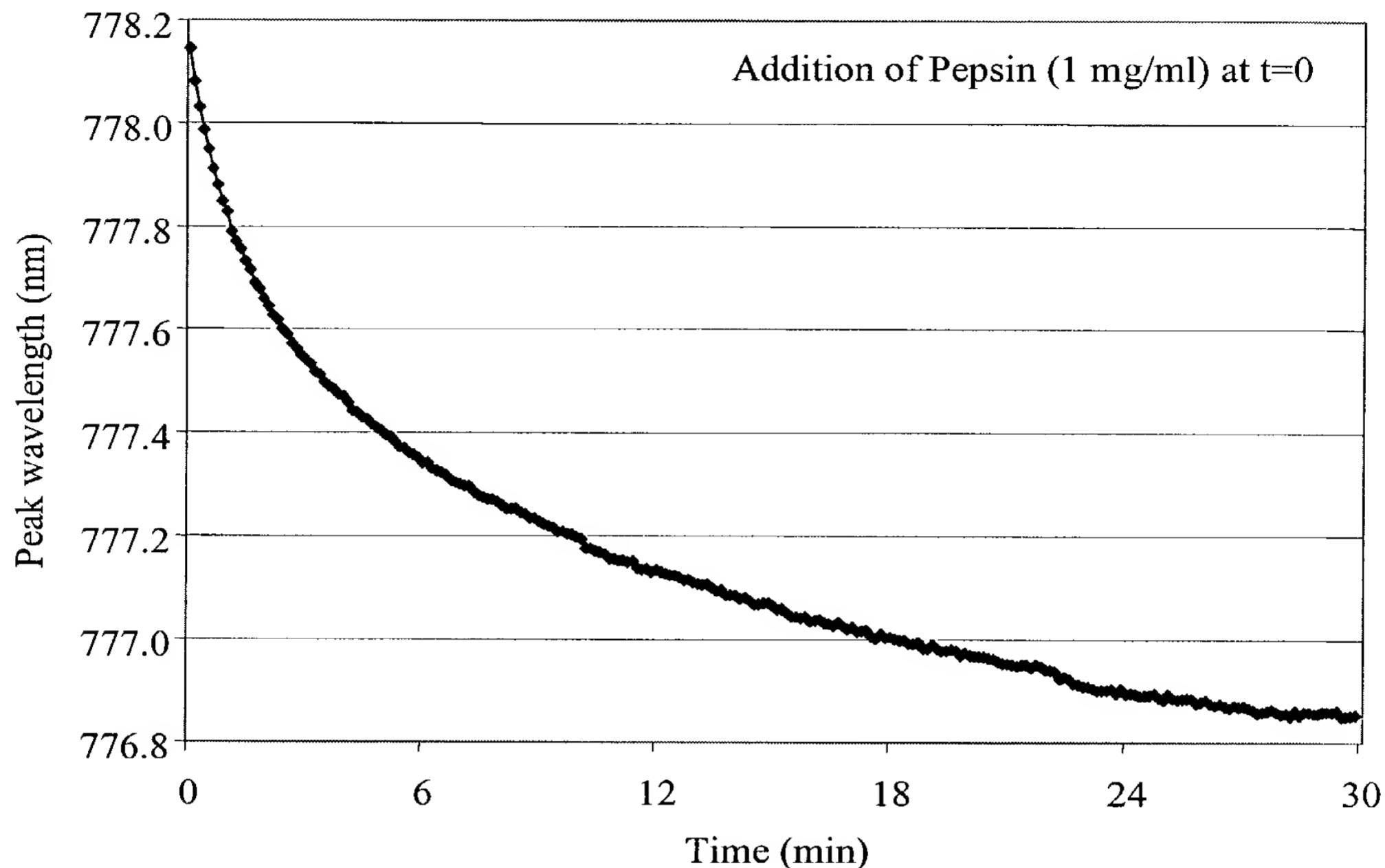
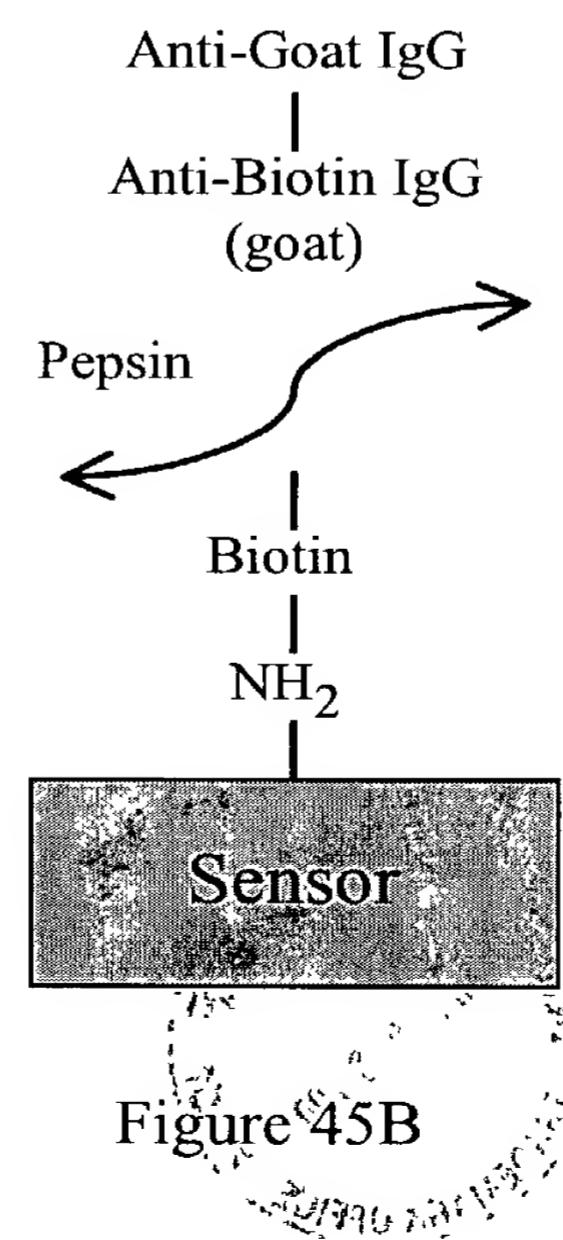


Figure 45A



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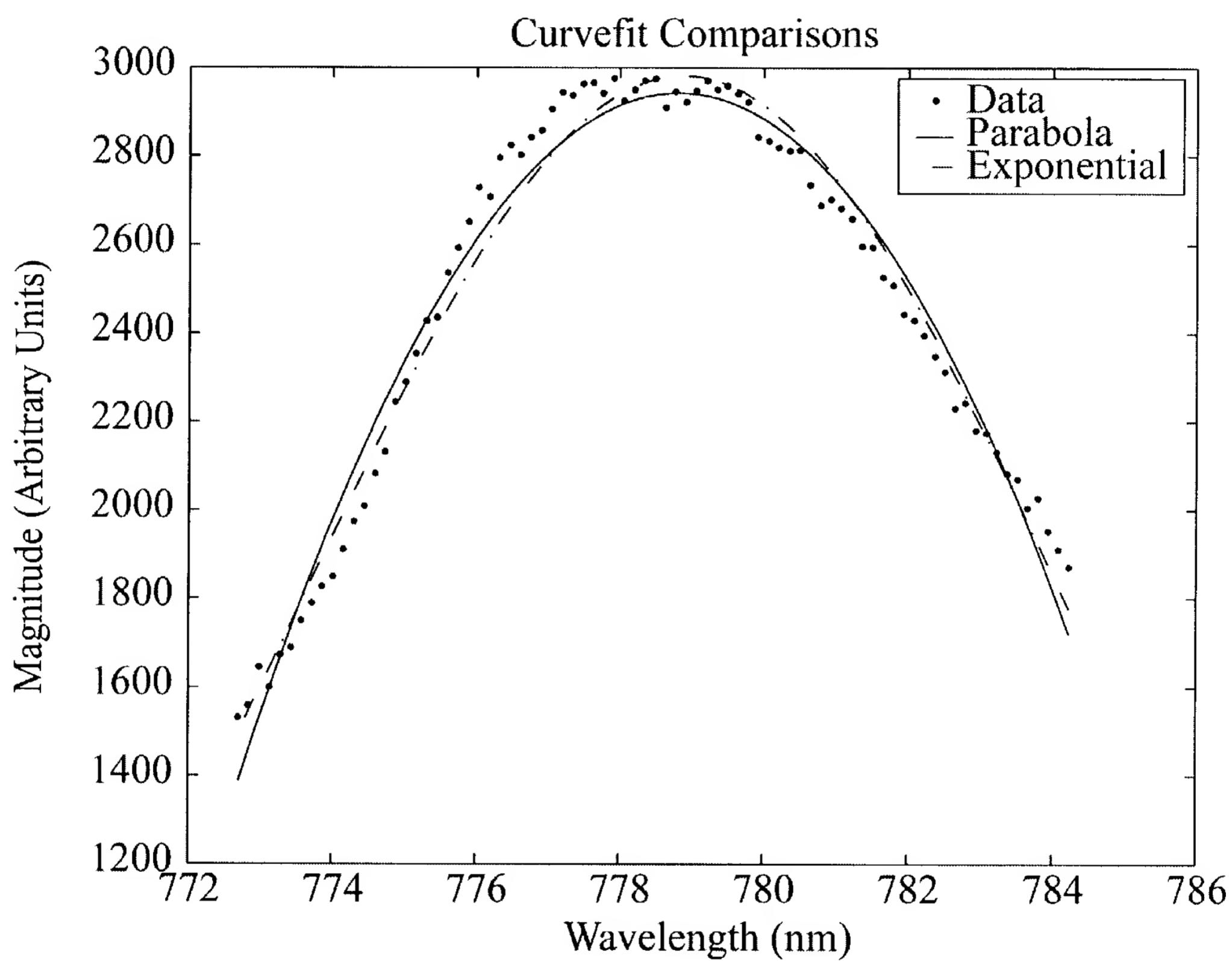


Figure 46

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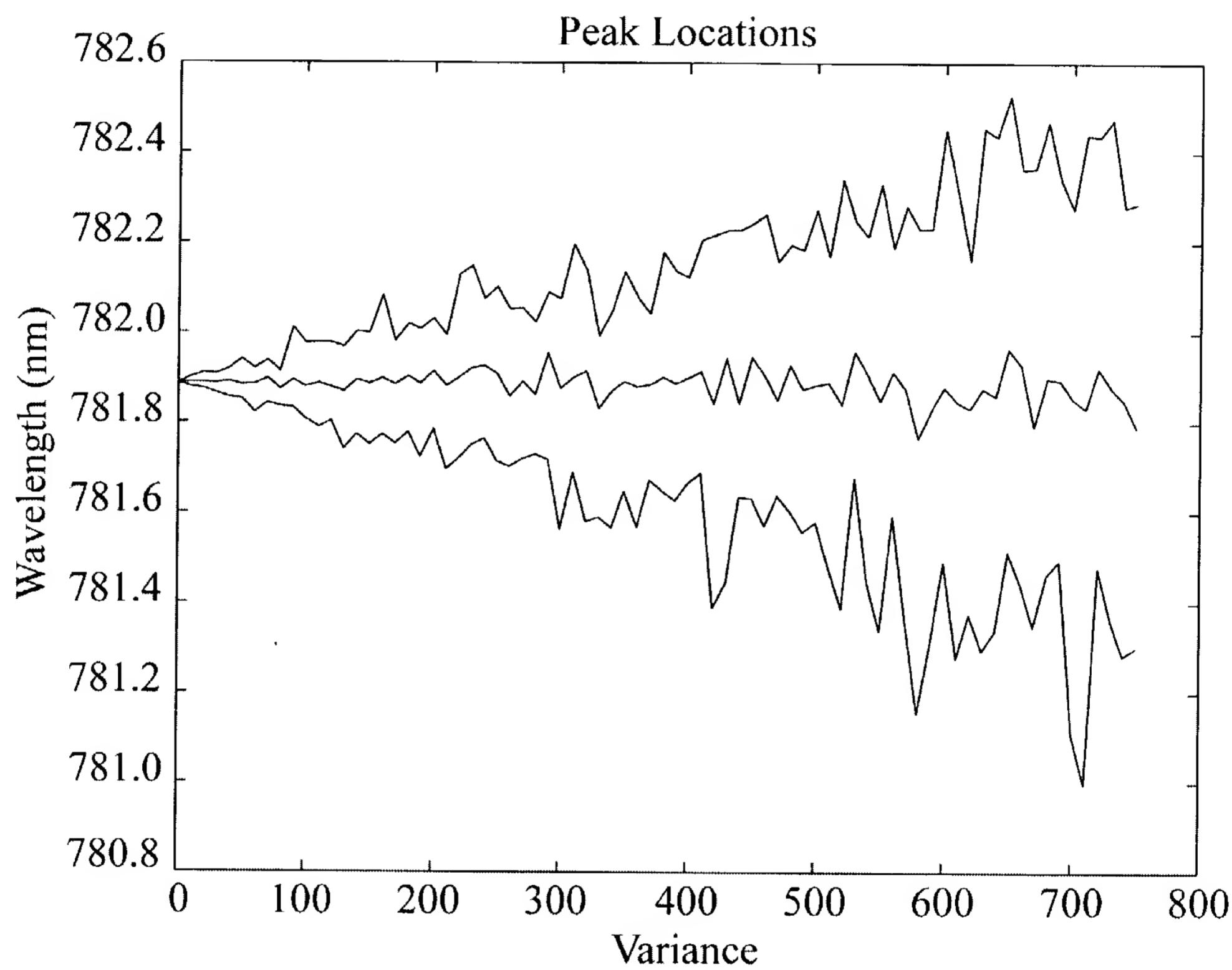
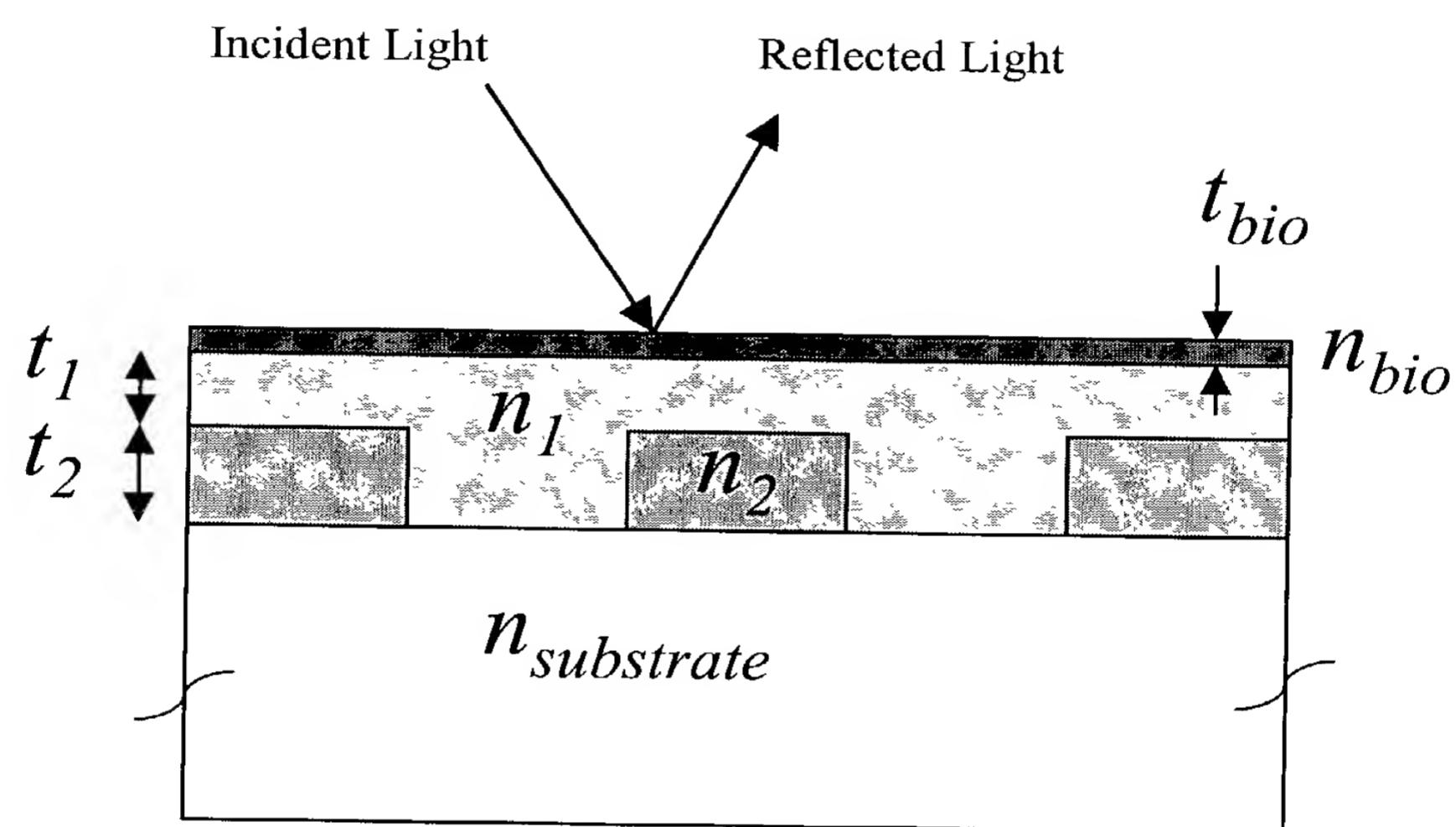


Figure 47





Material 1 = Electrical Insulator (photoresist, epoxy, glass)

Material 2 = Indium tin oxide conductor

Substrate = Glass

Figure 48

Concentric Circle Design

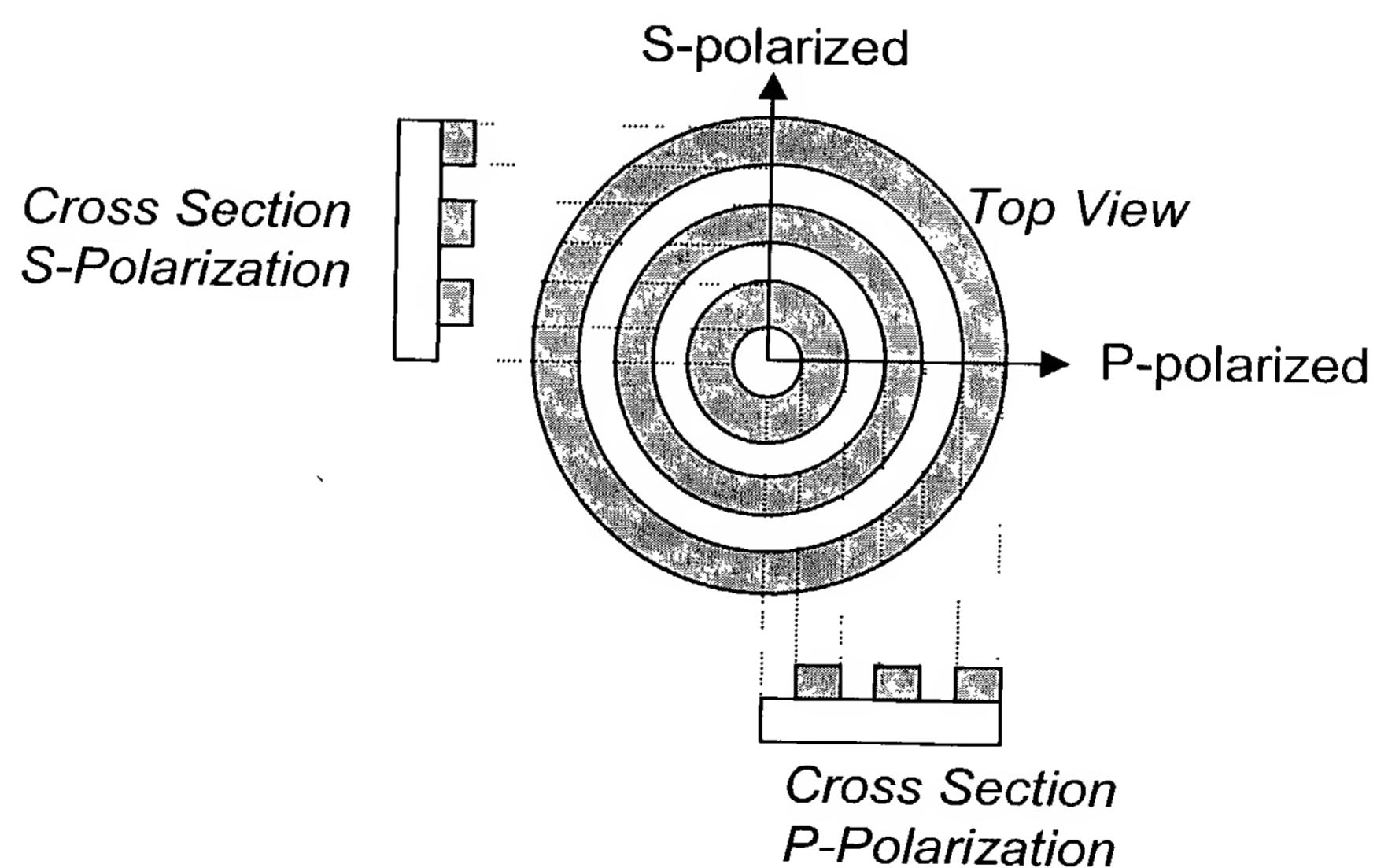


Figure 49

Hexagonal Grid Design

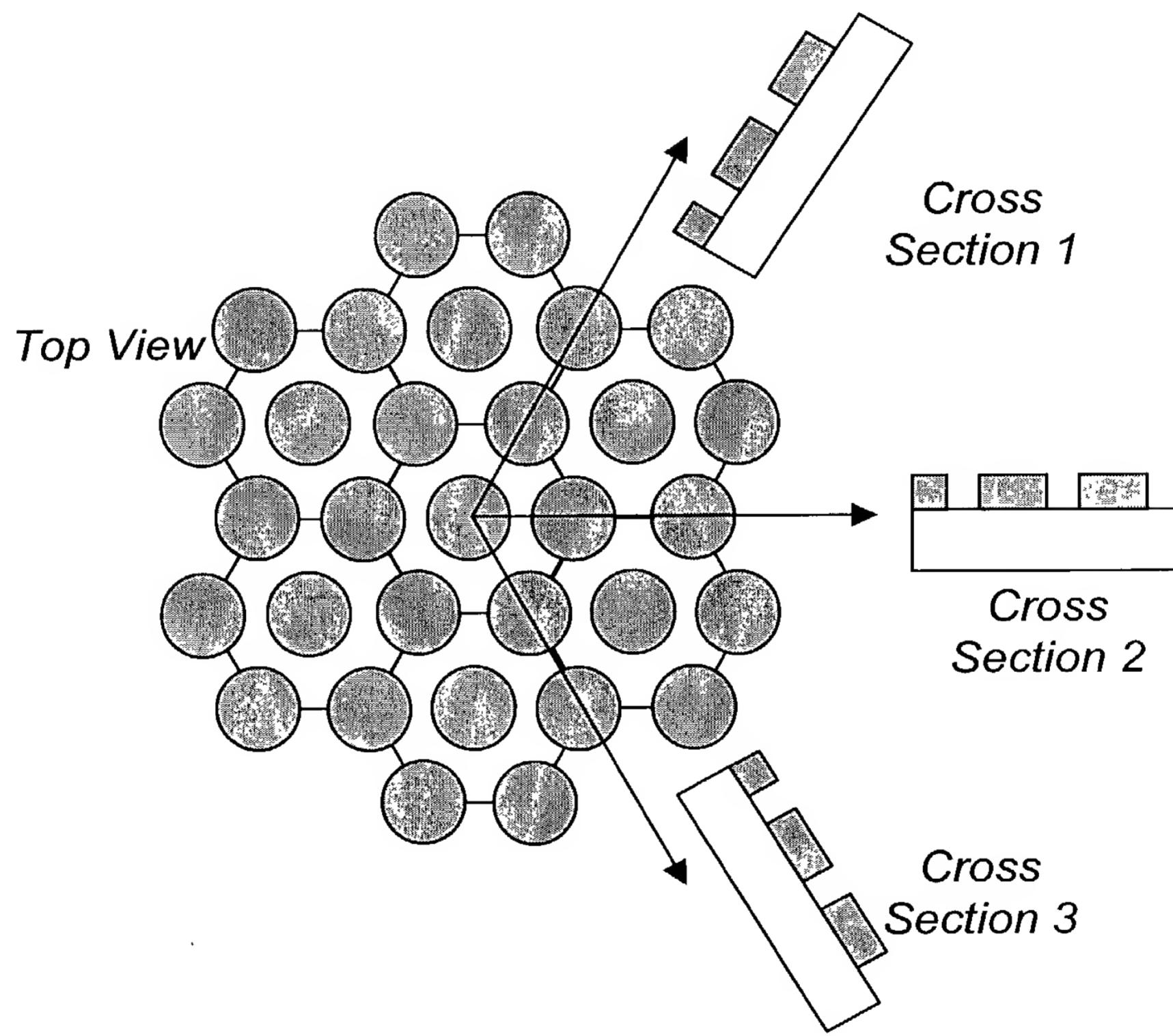


Figure 50



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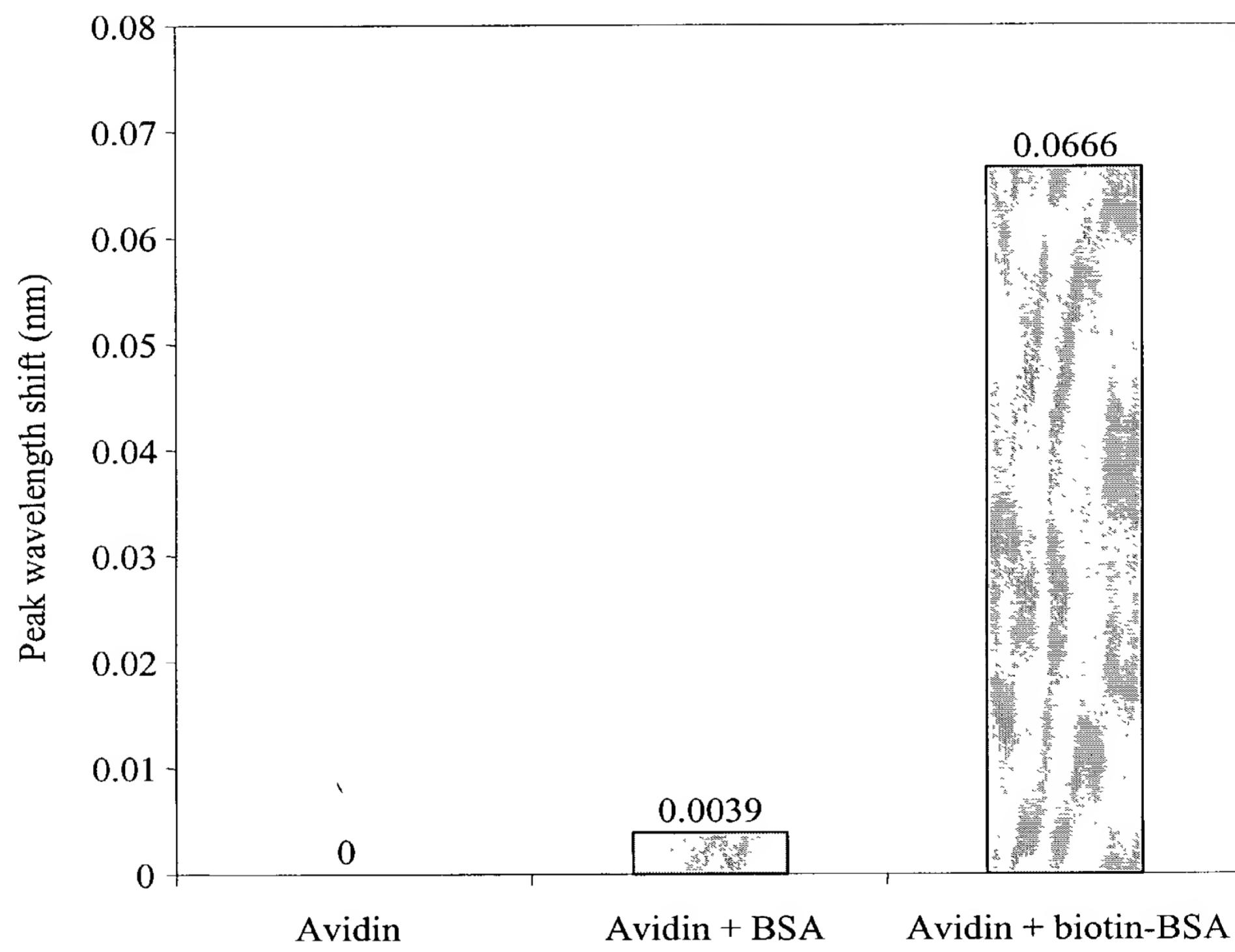


Figure 51

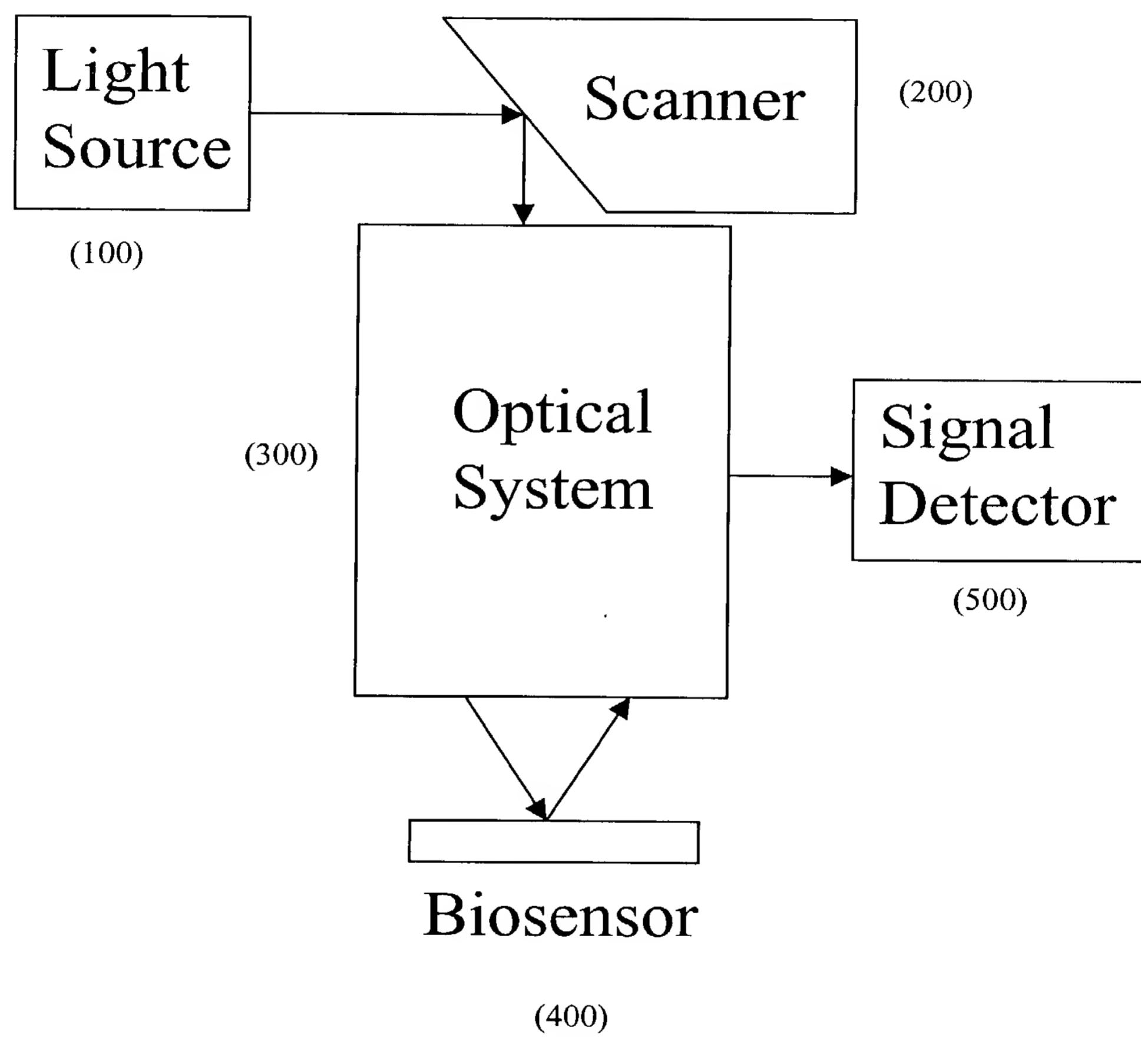


Figure 52